equally, but differences show up in ease of use and flexibility. Buyer's Guide, page 74

The Newsweekly for Information Technology Leaders News updetes, feetures, forums; www.computerworld.com November 3, 1997 - Vol. 31 - No. 44 - 134 pages - \$3/Copy \$48/Year

## AlliedSignal races to the Web

Twin-cam site targets site next month that company business users, car buffs

Chat rooms

**boardrooms** 

MAIL BOXES ETC. in San Diego

will use it to conduct monthly

sales meetings with 2,700 fran

move into

By Bark Cole-Gomolski

By Sharon Machin A DIVISION OF AlliedSignal, Inc. will launch an ambitious \$1.9 million World Wide Web executives said will pay for itself within a year. The site's uniqueness lies in targeting both the die-hard car

buff and the heavy-duty business customer. "I think that's smart," said Vernon Keenan, a sensor analyst at Zona Research,

ing technology that to date has been most popular with teen Users and analysts said chat holds great potential for busi-

chisees. A major investment house is using at to host online events where clients pose ouestions to financial experts. It isn't a pricey videoconfer encing system, and it isn't a vir tual private network. It's Internet chat, the real-time messag-

nesses because it lets people Internet chat, page 16

The end is near!

2000 problem is caus-

Or is it? The year

ing a panic in some

hose experts who say

ere's no need to eat it, Have vendors and the ess inflated it into an IT

circles. But there are

#48183LTV308SR883# JUL 96 881 UNIVERSITY HICROFILMS INT

SERIAL PUBLICATIONS

ANN ARROR MI 48183-1508

386 N ZEEB RD

They're creating a sense of ommunity that will make 'Regular for Hot Rod' come back." "We wanted to put a stake in

the ground, something to differentiate us," said Eric Singleton, vice president of information systems at AlliedSignal Auto motive Aftermarket in East Providence, R.I.

A cornerstone of the site unru highperformancedriving.com. is AlliedSignal's massive parts catalog, which fills about 70 paper volumes. Business customers will be

able to place orders at the site which AlliedSignal expects

AlliedSignal, page II2

#### Record volume floods brokers. tests Web sites

By Tim Owellette, Stewart Deck and Kim S Nach

THE BELDGE of trades that flooded stock markets early last week also served as a reality check for online brokerages about the pitfalls of electronic commerce Inaccessible World Wide Web

sites and poor response time crippled and infuriated many Internet investors. But observers said the problems weren't any different from what traditional, full-service

brokerages experienced when about a billion shares traded hands Tuesday "¡Online traders) were as pre nared as full-service brokers said Michael Gazala, an analyst Detroit Edison's Jackie Benson: Many organizations don't

## IS recruiters clamor for minority talent

he labor shortage may actually be good news for racial diversity in IS. Recruiters are offering impressive salaries and \$2,000 signing bonuses to much of the senior class at Howard University in Washington, for example. "We have more diversity in IS than in any other department," says Jorge Figuredo, head of human resources at Liz

Claiborne, a clothing designer in New York. Despite those positive signs, minorities in IS still face daunting challenges, including cultural gaps, a

persistent glass ceiling and a lack of mentors.

at Forrester Research, Inc. in



## Not all endorsements require a profes with a \$40 million contract.





No endorsement can make you feel comfortable unless it comes from a credible source. And with one major corporation after another switching to Gateway 2000, that's exactly what you get.

Like you, other corporate IS/TI managers needed business computers specifically designed to meet their needs and exceed their expectations. So that's precisely what we gave them.

For starters, the E-Series desktop line meets manageability head-on with features like stable network-ready platforms, DMI compliance and LANDesk Client Manager. So your company can grow at its own pace.

And no one in the industry can match the degree of modularity offered by Gateway<sup>10</sup> Solo<sup>2</sup> portable computers. Now, not only can you switch components individually with one product, you can also switch components across the entire Gateway Solo line.

We also have a full line of servers that are among the

industry leaders in fault-tolerance capabilities. And each server is equipped with components that allow for easy scaleability in memory and expansion in network size. So if your company grows from 30 employees to 3,000, now your network can network and the server in the server in

Of course, our full line of workstations can grow with you as well. Each workstation is certified with Microsoft Windows NT and leading application software. And each one features industry-leading graphic power which provides you with uncompromising performance.

The way we see it, when it comes to business computers, we won't stop until we're the leader. So give us a call, and

we'll put you in touch with one of our sales representatives. They'll be happy to answer all your questions. Of course, you could also talk to our friends at Union Pacific, Ocean Spray, Hughes Defense Communication...



6/997 Genewy 2000, Inc. Currows 2000, Mach and whene-pert dengar, "C" lago and "for 've get a friend in the business" slope are registered indomation, Currows and Currowsy Sole are maderankin, and Currowsy Sole are maderankin and currowsy Sole are maderanking and substantial and their registeress and Currowsy 2000 registered in the Currowsy Sole are maderanking and included and includ

## sional athlete

84000 law Cest limited: Bestly Busines + lean' (664-68); fractions\* Processes with MACA." Tradescings + 1006 203444 2667. Tradescing flow Cache + 15/66 38 Seems Pack 107 Seems (37 revenible 107 Seems 107 Seems (37 revenible 107 Seems 107 Seems (37 Seems 107 Seems 10

Different County and County Co

\$2000. Bigs Pedromance Remoth South Switchy + Inst 2004-bit Pentare II Processor with 512K ECC Cache #46405.500.AM = 17900. 25 Scient Peta 17 Petersor III\* revealed; #4codCopinis Premada 212 Fe ACT with 8645.5CAAM = 612M Diss ACA Hard Diss + 12X CD-62M Diss and 25° Dislates Diss = 815m Editors Adaptive #56mm 56d Sover Cace = 16° Explorate and Act Institutes = 935° Windows NS\* (Diss) problem World LANDook Clean Managery 3/91 # Genoviny Gold Service and Support for 8-Sense PCA\*

SPRING Seasons Laura Tillicono Lucivio and Act Georgea Spatial Developed and Spatial Spatial Spatial Spatial Spatial Spatial Spatial Spatial MOV, Stochology on a 2004-51 w 2004-40 monicales to 2004-51 w 2004-51 monical Spatial Spatial MOV, Stochology on a 2004-51 w 2004-40 monical Spatial Spat Der \* Und Farts B. Zecened Noten \* MC Windows 50 or MC Windows NI | 4 U\*MC World 50 or MC lead Bammen Edman plus Bookshell\* 90 \* LapLack\* for Windows 90 or McAfert\* Vendica. \* Carin Jones and Sammer for Petrahir PCs. **Prices storting at \$2000** (Chaptery II) Banness Leave \*277 two

Server and Segrent in Product To. Primar designed 4 (1999) Country (1) Beatons Intel 17 Tree George 16 (1998) Primarily 1-19 S. P. ATT Cock for policy 16 12 the Instances the Primary and Month Chemistry on the Primary Indicates (1994) 15 (1994) 16 (1994)

85-7002 Westgroup Gass Server +Lord 2007/File Personn II Processor processors \* Error Checking and Commung Memory Solveysian with 6448 EAM \* Several EACH Upgrades for fidelith 44CA Units Weds SCH Hard Dever 12X SCH CO MON and EAT Deducts Deve EACH 15100 Internet Adaptive \* Seems by Server Tower Case \* 225 West Town Sport Sport \* Server Search Sear \* Server Management System with ActiveCPS Processor Protection

IS-000 Experiment Claim Server wheat NOMPA: Ferrors 1 Processor with TEXT Carbe (expendable to ree-processors future Carbering and Committing Memory Subsystems with TEMPA RAMM Coach Pers-Sony (INFE). RAMD Sensors Systems with Texts Channel Committer \*Times Rest-Songspath ACAS SEX Abed Dosses \*TEMPA SEXT COACHES Dosses and SEY Deleters Driver \*F.Com 16/100 Enteren Adaptive \*Timeron Myr Sense Treest Coaches \*PLAS SEX Methods Restorated Texts Pictor Manager Server Management System with Antive CIP. Processor Processor. \$7000 Business Laura (1200) inc. 85-0006 Returning Class Server + Two local 2004-01s Ferrage Tro\* Processors with 512K Cache Isomandable to an processor of Error Chesking and Convexing Memory Subsystem with 1200d TAM 4 Quick New Swap (CDS TAM) Stronge System with Three Channel Controller 9 Trace 4 CAS 5 CA 5 CA 16 Intel Proces 4 225 CA (CDS TAM) Stronge System with Three Channel (Controller 9 Trace 4 CAS 5 CA 5 CA 16 Intel Process 2025 CAS 16 Intel Process Spaper Southern with Two Not 7 CAS 16 Intel Process Adapted 5 CAS 16 Intel Process Spaper Subsystems with Two Not 7 CAS 16 Intel Process Spaper Subsystems with Two Not 7 CAS 16 Intel Process Spaper Subsystems with Two Not 7 CAS 16 Intel Process Spaper Subsystems with Two Not 7 CAS 16 Intel Process Spaper Subsystems with Two Not 7 CAS 16 Intel Process Spaper Subsystems (Not 7 CAS 16 Intel Process Spaper Subsystems Spaper Spane Spaper Spaper Spane Spaper Spape Explored & MS Intelligence Int 112,995 Junters Lane SC 6/20



"YOU'VE GOT A FRIEND IN THE BUSINESS"

CALL 1-888-888-0787 www.gateway.com Gateway 2000 Major Accounts, Inc.

Little Aller Town State From Policy Control of the Control of the

supplier of the year.

Union Pacific names Supplier of the year

#### NEWS

- PROPERTY STRATEGISTS

  Really Mighton Conservery

  And relation conservery

- - REAPC.

## Lotus to fix file viewer

▶ Bug affects Notes 4.x and Excel spreadsheets

#### By Gordon Mah Ung

LOTUS DEVELOPMENT CORP. said it is working on a fix for the file viewer in Notes that shows an incorrect number when viewing Microsoft Corp. Excel

Lotus officials denied reports that the company knew about the bug six months ago and said a fix will be available soon. The neoblem affects Notes 4 v

pertions and snost versions of Excel. It appeared at the BugNet Alert World Wide Web site (www.burnet.com) last week after a frustrated user complained

about the work-around he was given by Lotus parent, IBM. 'Their work-around was to not use the file viewer" said Craig Lowenthal, vice president of information technology at Re-

liance National Insurance Co. in New York, "How realistic is it to send out an E-mail and ask users not to use it?" The bug appears when Excel spreadsheet attachments are

opened through the built in Notes viewer. Gustom-formatted cells in the spreadsheet lose a

decimal place, turning an amount of 460,100,02, for example, into 46,019,092. The bug doesn't affect the spreadsheet if opened through Excel. Lowenthal said it came to his

attention when the chief financial officer at his company saw a unreadsheet for a particular had. set and hit the mof

ROOT OF THE PROBLEM The viewer is made by Inso Corp. in Boston. Officials at the company last week said they knew the older viewer had a bug but it was corrected in a new version that has been available for almost a year.

It's really a case of Lotus and their right to make the decision when and what version of the technology they make available," said a spokesman for Inso. Inso offers for about \$50 a retail version of its viewer that will correct the problem.

#### SET protocol gets boost

#### By Sharon Machlis

IN A MAJOR STEP forward for the Secure Electronic Transaction (SET) protocol, VeriFone, Inc. has rolled out a suite of commercial products based on the SET 1.0 standard.

But critics said SET is still a long way from widespread use for nurchases in cyberspace. SET, which is being developed by major financial compa-

nies including Visa International, Inc. and MasterCard International. Inc., is armed at creating online transactions that can't be spoofed, backed or altered.

VeriFone's suite includes software for handling the bank. merchant and consumer roles in a secure, online credit-card VeriFone, a subsidiary of

Hewlett-Packard Co., holds 6c% of the U.S. market for pointof-sale terminals, so its support for an electronic buying standard is important, said Karen Epper Hoffman, an analyst at Forrester Research, Inc. in Cam-

BA Merchant Services, Inc., a division of BankAmerica in San ancisco, is satisfied with early SFT milet results and plans to continue working with the security standard as it matures This is really the beginning. said Bill Campbell, vice president of product management at the company.

#### HOT QUITE READY But some believe SET is still too immature and complex. At

AlliedSignal, Inc. in East Providence, R.L. developers of a major World Wide Web site looked at SET but decided to stick with Secure Sockets Laver (SSL) encryption technology for now "[SET is] not up to-speed." said AlliedSignal program man

ager Kristy Davis. It is more likely to scare people away, she said, because consumers probably don't want to go through the process of ob-taining a digital certificate to make spontaneous, one-time

And SET client software for end users sen't widely available

The VeriFone suite includes VPOS merchant software priced starting at \$995; VGATE for financial institutions, which is priced based on transaction volume; and VWallet end-user software, which banks will provide free to consumers. D

s more sawy use of information systems of this divorce. Two years ago, Beneficial ank and RI's Wholesale Club

g I could, but I always paid my er Common a lot of orbo

rho were paying their

In Beneficial's eyes. I was too good a customer.

t card risky in the first

wing my Bj"s card. And that's prob

Paul Gillin, Editor mo.wo.Brillin.Jun





## Computer ills trigger health plan losses

HIGH-FLYING Oxford Health Plans, Inc. has been laid low by a computer problem that caused the company to overestimate revenue and underestimate

medical costs The announcement from the St Million Norwalk Conn. based health maintenance organization that it will post its first-ever tors (see chart). Oxford's stock price fell 62% last Monday to close at \$25.87, before creeping back to \$27 by last Wednesday

Oxford has had problems dating back to last September in the migration of its claims pri cessing system from the Pick operating system to a Unixbased system that uses Oracle Corp database software and hardware from Pyramid Tech-

But company officials told analvsts this sonno that it had fixed the mess that had delayed millions of dollars in back pay ments to scores of physicians and hospitals in the New York

BIG SURPRISE

"I was stunned because all indications coming from the company were that things were going well," said Greg Craw ford, an analyst at Fox-Pitt, Kelton, Inc., a New York haved benkerape

Oxford officials declined to provide details on the computer problems, noting that the company is in a "quiet" period before its earnings come out Nov 4

Oxford has been a juggernaut m the managed-care arena, buoyed by strong membership growth and keen marketing. Analysts have also praised the company's use of the World Wide Web, which gives members access to lists of providers and allows physicians to check the status of claims (awarezho

In April, David Finkel, Oxford's vice president of operations, told Computerworld that "nearly all of the issues" had

been resolved and that Oxford was processing 88% to 86% of all claims within 30 days. But the computer problems haven't gone away, nor have complaints about billing delays. Schaum, a Garden City, N.Y. attorney who represents physicians at Long Island Jewish Medical Center in New Hyde Park, N.Y., and New York Hoens tal/Cornell Medical Center in

Aetna/U.S. Healthcare and Pru

dential Insurance Company of America, covered 150 aspects of member satisfaction uncluding claims handling and billing issues, said Tod Cooperman, Care Data's president and CEO.

Oxford Health Plans

> Accounts receiv system overestimated enrollment and underestimated medical costs.

Results ► Charge against third quarter earnings of \$47

million to \$53 million. > Expected third-quarter loss of \$65.4 million to \$69.3 million

> Revenue for the quarter expected to be \$111 million less than previous estimates.

A spokeswoman for one of the hospitals affected by the reimbursement delays - North Shore University Hospital in Manhasset, N.Y. — said its billing problems with Oxford have been largely resolved.

Despite the computer problems, Oxford's members don't appear to have been affected. In a recent survey of 2,964 respondents, Oxford was ranked first in customer satisfaction out of nine commercial health care plans in New Jersey, according to CareDuta Reports.

Oxford's accounts receivable billing errors recently came to the company's attention "as a result of reviewing and reconciling previously delayed premium bills and medical claims," said Stephen F. Wiggins, Oxford's chairman, in a press release. Because Oxford officials

wouldn't answer question about the company's problems, analysts said they couldn't estimate how much it will cost to fix Oxford's systems or whether the computer glitches will put a drag on future earnings. []





► OpenVMS technology allows multiple systems

is expected to unveil early details of its OpenVMS Calany cluster. ing technology at this week's Digital Equipment Computer User Society (DECUS) conference in Anabeim, Calif.

But questions about the future of the OpenVMS operating system following Digital's Alpha chip settlement with Intel Corp. last week could undercut interest in the technology (see story, page 11)

Digital's Galaxy, technology for OpenVMS, set to ship in the second half of next year, will let

Digital's Galaxy Software Architecture

essers: Up to 256 CPHs

lemory: Up to 17 byte Parts: Up to 200 I/O

By Jaikumar Vijayan users split one multiprocessing

DIGITAL EQUIPMENT CORP. that run their own copy of the operating system. That kind of partitioning will increase system availability and make it easier for users to consolulate and manage large servers. "What it means is that Digital

remains serious about the VMS marketplace, especially at the high end," said Terry Shannon, editor of "Shannon Knows DEC." a pewsletter in Ashland. Mass: "Galaxy offers some compelling cost of ownership and consolidation attributes."

Galaxy will run on current Digital servers but will probably ship on a new 32 processor Alpha server, code-named Wildfire, that Durtal is readying for release next year

Harre malenmed the idea 'If it does not degrade performance, it would be a great thing" from a server manageability point of view, said Fernando Yson, manager of Alpha

systems at Unicare in Hunting-It would allow us to provide

single box and give us the added security" of having multiple servers in one place, said firian Cuttler, VMS manager at the State University of New York in

· "But Digital's silence on the future of OpenVMS is disconcertung." Cuttler said.

The concern was prompted by last week's announcement by Digital that it will port its 64 bis Unix to the forthcoming IA-64 technology being developed by Intel and Hewlett-Packard Co. "It is not the kind of feeling stomers want if they have to

make large investments" in technologies such as Galaxy, Digital also will unveil Wave 9

in its Affinity product line at DECUS. Armed at linking OpenVMS environments with Windows NT, Affinity tools give users enhanced mail and messaging integration, system man agement tools and an integrated transaction processing monitor for both environments. (1)

O Digital pumps up Alpha servers. Page 63

Let's see. You've got your macro viruses. your boot-sector viruses, your polymorphous viruses. You've got your clever boys ho turn "elite" by wiping out your hard drive. And on deck, you've got your Active-X, a potential virus hotbed. For the tabs that tht destructive code, business is boom nouterworld spent a few days with ....

Sections of Advantage of the Party



## Start-up pitches cheaper switches

By Bob Wallace

LOOKING TO LUBE users with rock-bottom prices, NDC Communications, Inc. soon will announce a pair of 10/100M bit/ sec. switches at half the cost of boxes from the Big Four switch makers

The little-known Sunnyvale, Calif., vendor next week will unveil the NSHsoo, a five-port 10/100 switch that costs \$127 per port; and the NSH800, an eight-port model that will cost \$124 per port. Street prices are likely to be less than \$100 per

This is a great deal, considering that Bay, sCom and others weigh in at \$250 to \$350 per port with their newest 10/100 switching systems," said Craig Johnson, an analyst at Current Analysis in Ashburn, Va. "Companies like NDC without huge brand recognition compete on

price and hope to make up (marguns on volume sales. More expensive switches tend to have more networking features, such as remote monitor ing for switch troubleshooting. Johnson said. But the NDC box es won't ship until the first quarter of next year, giving major vendors time to bring down their own prices. Johnson said he expects ad-

ments in application spe cific integrated circuits to cut the price of hours from Bay Networks, Inc., (Com Corp., Cisco Systems, Inc., Cabletron Systems, Inc. and others. CI

## Tivoli tool enhances inventory tracking

By Patrick Dryden

TINDES STREET, INC. last week upgraded the inventory tool that plugs in to its enterprise management framework so managers can better track the components of client/server

TME to inventory 3.3 can automatically discover the hard ware and software configuration of more evetens. And it can more easily sift through that information or apply it to tasks

such as software distribution. A half-dozen vendors an nounced plans to take a dyantane of those improvements with their belo desk and asset man agement tools, which also can

plug in to the TME to frame Three out of four organizations still take inventory man ally, according to Internate Data Corp. in Framingham,

"The most significant benefit here will be to help the TME to adoptees pull together asnet information throughout the framework, especially if they have one of the partner products in place," said Alison Paimer, an analyst at Hurwitz

Group, Inc. in Framingham TME to Inventory 3.2 now can scan NetWare software from Novell, Inc. and more than Loop commercial Universities tions, beyond the A.000 PC applications it already recognizes. said officials at Tivoli in Austin.

Additional databases and data defined by Deskton Management Task Force specification are supported. A new graphical query tool can extract data for ng or export.

TME to Inventory 1.2 is avail able now It costs \$2,000 per server and \$75 per client. (1)



FCC: Put V-chip on PCs?

By Patrick Thibodeau

THE CONTROVERSIAL V-chip soon could end up in any PC that can receive video images. The Federal Communications Commission is soliciting com-

ment on putting the V-chip in PCs. The signal-blocking Vchip, which was included in last year's telecommunications deregulation law, regulres that makers of "any apparatus" designed to receive television sig-

nals include the chip. FCC offs cials said computers, because they can be used to receive TV signals, are potentially covered. As long as TV is defined as something that is broadcast over government-licensed channels.

"we will comply with that law said joe Tusker, a vice president and associate general counsel at Compaq Computer Corp. But if the government wants to use a V-chip for Internet content "that is absolutely wrong, and we will fight that absolutely hard beuse that's not television - the Internet is not television." "We think this is sort of a veiled attempt to sort of backdoor things like the [Communi cations Decency Actl. Most com

puters are accepting video, and the distinction between what's going to be video for broadcast and video for the Internet is get ting increasingly slim," said Dave Banisar, an attorney at the Electronic Privacy Information Center in Washington. 

Senior writer Sheron Machine contributed to this story.

#### Year 2000 fix uses compilers what similar to a continuersial

▶ Idea is to change the way computers recognize numbers, but some are skeptical it will work

#### By Thomas Hoffman

TWO ABOTHERS in Encino. Calif. claim they have come up with a new way to deal with the year 2000 problem by changing the way computers recognize

A digit on a computer can hold up to 16 characters. When a computer adds "1" to "99", it recognizes "00" as 1900. Without changing programs or data-bases, the so-called "19To" technique would change compilers to define more than 10 possible numbers for a single digit, thus allowing computers

to calculate beyond the year 1999

"Think of a car's odometer with two digits and a light on the board that tells you when you have gone over 99 miles." said Bill Lappen. 44. who devel oped the technique with his brother. David, at 19To Solutions in Encino. "Our method replaces the 'tens' wheel on the odometer with a larger wheel that just keeps counting past nine and doesn't turn on the

The fix would allow users to keep running date-sensitive anplications until 2059. Lappen raid. That gives companies "a pretty good patch before they have to go in and expand their date fields to four digits," be

#### W MUCH DOES IT COST? Individual users and small com-

mes with revenue of less than Ss million will be offered use of the technique free of charge. Larger occumizations interested in 19To will have to rely on software wendow to create new compilers embedded with the tech-

#### Correction

in the story "Quality?! What's that?" in the Oct. 13 issue, a paragraph explaining the im-portance of software engineering disciplines in a recent survey incorrectly stated the scale of importance used by the polling organization, Ru-bin Systems, Inc. in Pound Ridge, N.Y. The scale should have read ! (highest) to 10

pology. The cost for bigger shops would be reflected in the costs of those compilers, which can range anywhere from \$100 to \$70,000, Lappen said. Lappen said he has already talked to a handful of vendors about building new compilers to work with his technology, such

as IBM and Digital Equipment Corp., but it is uncertain whether they will comply

SETING IS DELIEVING Potential users and vendors espressed interest in 10To but were skeptical of its abilities. Ten not sure about this said Gary Blendinger, a sensor support engineer at Digital in Pinsburgh who had just re-

ceived information about 19To "I'll have to so over it with our seers and see if it's visble The 19To technique is some-

proposal from Bob Berner, the self-proclaimed father of ASCII. who suggests changing object code to make year values ride "piggyback" on a subroutine somewhere else in an applica-

tion (CW, Aug. trl. Other forms of year 2000 remediation, such as

windowing," can he very time-consuming. With windowing, for example. programmers have to go into an annication, find all occurrences of two digit years and determine the proper "prvot" year, or the year before the aist

The 19TO approach century is aste fixing year 2000-sensitive de "alvez users A year 2000 ana a pretty good patch lyst at a large petrochemical company for another 60 in the Northeast vears"

model said be found it difficult to use "It's pot to be simple to use or people will say, 'I don't understand it, I don't want it." like management did at my company," said the analyst, who

Lou Marcoccio. an analyst at Gart ner Group, Inc. in Stamford, Conn.

said the 19To technique "has some problems with it," including difficultion testing later Laporo said that won't be a problem

because users don't have to change any source code and the compiler makes date changes automatically. Then again, the

19To technique might be a say ior for information systems managers who are desperately short on time or those who are looking for a quick fix before expanding program date fields to

four digits. "If you don't have to change your code, it's definitely going to cut down your itime! curve. said Jackie Bachenberg, an internal consultant at Equifax, Inc' un Atlanta who is familiar with 19To.

#### TIME ELEMENT But first, vendors such as IBM

will have to come out with new compilers to run 19To. And even if that occurs, "it's (still) a time issue," said Lauris Nance, assistant vice president at Equi-

It typically takes six month or more to build a new compiler. said Mark Stabler, vice president at Computer Associates Interna tional. Inc. in Islandia. N.Y. 'You don't just come out with quick compiler changes tomorrow because of the regression

testing required against prior coding," Stabler said. months, racking up losses in three of the past five quarters. Part of the problems were caused by manufacturing delays

and an expensive acquisition

last year of Cray Computer

Corp., which was supposed to

infuse high-end server technol-

referring to SGI'a manufactur-

problems with execution but

said it will continue with

McCracken's recent moves into

the commercial server and Win-

They simply dropped the ball on execution," said Garden.

SGI last week acknowledged

ogy into SGI.

ing delays.

#### Unix workstations

## SGI results worse than expected: McCracken out, layoffs planned

THREE YEARS AGO, computers from Silicon Graphics. Inc. made Jurusnic Park possible. Last week, the question was whether the company was in danger of nome the way of the diposaur. It looks like a bit of a train wreck at SGL" said lames Garden, an analyst at Technology

Business Research, Inc. in Hampton, N.H. Prompting the concern was news of SGI's deeper-thananticipated layoffs, the resignation of longtime CEO Ed McCracken and aims that the

company's long promised recovery hasn't been shaping up

#### DEEPER CUTS

Mountain View, Calif-based SGI last week said it will lay off 700 to 1,000 of its 11,000 employees - almost double what analysts had expected. The moves will result in a \$40 miltion charge for the company Also leaving is Executive Vice President Gary L. Lauer.

The announcement came on

report, in which SGI posted a loss of \$55.5 million on revenue of \$768 million for its first quarter of fiscal 1008.

Less than two months ago. McCracken said the company was well on the mad to recovers Even so, the news wasn't a surprise to analysts who have been predicting that SGI'a continuing focus on expensive Unix/RISC workstations in the face of a threat from memors ive Wintel boxes would lead to

problems. moved quickly enough in trans-The senior management keeps petting surprised Dry marketing trends), and that is not a good thing. It looks as

though [SGI] lost touch with the reality of the marketplace." - Andrew Allison, editor

"Inside the New Computer Industry" newsletter

"The senior management keeps getting surprised (by market trends), and that is not a od thing. It looks as though SGII lost touch with the reality of the marketplace," said Anthe New Computer Industry," a newsletter in Carmel, Calif. Meanwhile, other Unix work station wendors such as Hewlett-Packard Co. and Digital Equip ment Corp. long ago sta shapping Intel Corp.-based Windows NT systems. Sun Microsystems. Inc. also quickly ex panded into the high-end Unix servers and the Internet market. Conversely, "ISGII didn't rec-

forming themselves, like Sun,

from a workstation company to

a server company," Allison said.

erring from one weak quarter to

the next over the past 18

The result has seen SGI stag-

tel market TOO LATE? But analysts fear it may be too little, too late. gnize the threat represented by For instance, the company NT workstations and hasn't late last year announced a line of

powerful high-end servers but failed to capitalize on early demand because manufacturing

And, although SGI recently said it plana to start manufacturing Wintel boxes, it won't ship them until late

The delay will fur ther widen the gap between SGI and other former Unix-only vendors. And it could cruse users to postpone SGI purchases until the new machines start shipping, analysts said.

## **Our Software Secures More Corporate Data Than A Competitors Combi**



More clients --- including 462 of the Fortune 500 - trust CA security software than all the partial, proprietary solutions offered by IBM/Tivoli. Platinum and Boole & Babbage.

#### CA Security Software is #1.

CA holds more security "firsts" than any other vendor, CA was the first to secure IBM's DB2 platform (two years before IBM). CA was the first to identify and address all the security risks of









(Internet Commerce Enabled"), CA is the first to make it safe to do business on the Internet

Unicenter® TNG" offers the only integrated solution for true end-to-end enterprise management. With support for every major hardware platform and operating system, Unicenter TNG is open, scalable, extensible and 100% vendor-neutral. In addition, Unicenter TNG offers at kinds of nowerful and

face with virtual reality, Business Process Views" and advanced agent technology.

No other management software offers anything like it.



## While our competitors are talking about a frame

work for the "future." Unicenter TNG is a proven software solution that's available today. It's real it's mission-critical and it's up and running in thousands of sites around the world for

some of the smartest clients in the world. Our clients sleep soundly every night knowing that all their IT assets are safely protect ed by the best security software in the world Shouldn't you?

**Unicenter TNG** 

## Police to track suspects on **GTE Internet-based system**

GTS CORP. has entered the e-busting business with The Bastille, which it claims is the first nationwide interactive. Internet-based informationsharing service for police de-

Once police agencies share information, it's amazing what they can do," said David Wilson. a property and computer crimes detective at the laving, Texas, Po-

The Irving Police Department soon will join to other law en forcement agencies in northern Texas in a six month free trial of The Bastille. Specifically, police hope to use the service to share tips on crime patterns and possible suspects and to transmit data, graphics and even video of

suspects in real time. GTE, a \$21 billion teleco ons company that offers local telephone connections and wireless, Internet and lone-

distance servace, touts The Bastille as a first. The FBI has a National Crime ation Center (NCIC), but formation on gangs and other criminal activities through comworks aren't national. And the NCIC doesn't operate in real

puter networks with great success (CW, Sept. 1), but those nettime and isn't expandable, local notice said.

NOT LIKE THE NOVIES "Our eyes were opened wide when we first investigated providing this service ... and found ture for sharing law enforcement information, even though you see otherwise in the mov-

ies," said Brian Plotkin, a GTE It is unclear whether the twork can grow enough to be an asset for police. "It needs to be ubiquitous to work," said Rebecca Wetzel, an analyst at

TeleChoice, Inc. in Upton, A spokerwoman for the Montgomery County, Md., Po-

check criminal histories on sussuch as The Bastille could help pects and people with outstandunvestigators fill the gaps in ex ing warrants. Some regional isting police records petworks and local police groups share inin Maryland and the Washing-

## The service, available nation

wide Feb. 1, will cost \$100 per month for any department, with a 10% discount for a three-year That price is low enough that

ne small agencies could afford it and be able to tan in to the resources of many larger police departments with only a PC or laptop equipped with a browser, said Jim Balderston, an analyst at Zona Research, Inc. in Redwood City, Calif.

GTE officials said the service will be highly secure with firewalls, encryption and authenti cation devices from well-known wendore

Despite the high level of security, Balderston said "nothing is unhackable, and nothing is 100% secure." The service undoubtedly will raise the eyebrows of privacy adPutting the quillotine in GTE's Bastille

Origin 200 servers nmetrix sterage for phob berGuard Firewell and



cates who worry about police GTE officials said the servisharing information on susdes security that complies pects who haven't been convict with U.S. Department of Justice ed of any crimes, Balderston guidelines for protecting the privacy of suspects. D

## South Carolina uses 'net to keep tabs on convicts

#### Project notifies victims of prisoners' actions

By Tim Ouellette

SOUTH CAROLINA is turning to the long arm of the Internet to let-crime victims keep tabs on

By next March, the state will put the first pieces of its Internet Victim Information System (IVIS) online. The system uses the Internet

to link various state agencies

and victim advocacy groups and notifies victims when criminals

are about to be released. About as states are installing automated telephone notification systems, according to the National Victims Center in Arlington, Va. South Carolina will take that a step further with its

IVIS will replace a system

that relies largely on paper shuf-



fling, which leaves the possibility that some of the state's 21,000 prisoners could be released without victime

knowing about it. An IBM RS/6opp SP and an Oracle Corp. database will anchor the system. which can be accessed by vic-

tims, state agencies and victim support groups via World Wide Web browsers. Victims without Internet access can get access through advocacy and support

IVIS also will automatically phone victims with an automated message when prisoners are up for parole, due to be released or are appealing their convictions, for example

"We have needed this for some time," said Laura Hudson, head of South Carolina's Victim Assistance Network in Columbia. "It has always been the criminal's justice system,

The U.S. Department of Justice estimates that crime costs victims nearly \$450 billion per year, including pain, suffering and the loss of quality of life that comes from being fearful of another attack

> since they know what is going on [in the judicial process] But IVIS is giving more linformation) to the victims of crime " Notifying victims of their attacker's whereabouts has become a hot issue for voters around the country, especially as

violent crime continues to rise in many areas (see chart). IVIS is being developed in response to this nummer's possage of South Carolina's victims nghts law. Victims and their families lobbied for notification so they can testify against prisoner releases and steer clear of further contact with criminals.

South Carolina chose IRM's

RS/6000 SP, better known as Deep Blue, because there is nore than just victim notificafor IVIS

tion on the agenda We envision that this will serve as the foundation for a wider computerized criminal justice system, which means it

has to be expandable," said loseph Johnson, project di rector at the Univer sity of South Carolina's Ad

vanced Solutions Group, which is developing IVIS. The university is building IVIS - expected to cost \$200,000 per year - with fed-

eral and state grant money. To provide extra security for the Internet-based system, the state is exploiting the RS/6000 SP's number-crunching prov ess to use 128-bit encryption for data transfer and a second level of encryption in the data

Johnson said he expects to help other states build similar statewide systems based on IVIS in the future CI

### Oracle-The Best of Both OLAP Worlds

"Oracle has emerged as the technology leader in online analytical processing (OLAP)."

—ComputerWorld

#### Query & Reporting — Oracle Discoverer

"Discoverer's intuitive interface makes it a joy to use."

—InfoWorld, May 1997

"Discoverer...outstanding database integration, efficient query engine..."

—PC Week, May 1997

"Discoverer is clearly the best choice among ROLAP tools."

—PC Week. May 1997

#### Advanced Analysis — Oracle Express

"Flexible and Scalable, Express is head and shoulders above the competition."

—Rudolph Pizzano, President, Roadman Technologies

"When it comes to analytical power, Express is in a class by itself."

-Teresa Wingfield, Giga Information Group

"Oracle Express is the OLAP market share leader."

-Business Intelligence Ltd.

Oracle provides the most comprehensive family of data analysis tools and applications in the industry, addressing the full spectrum of decision support needs from query, reporting and data navigation to forecasting, modeling, statistics, budgeting, planning and 'what-if' analysis. On the Web or client-server against both relational and multidimensional databases. Choose the most scalable, enterprise-wide DSS/OLAP architecture and call Oracle today at 1-800-633-1071, ext. 12059 or download from our Web site at http://www.oracle.com/olap/



#### PRANKLY SPRAKING Managing user expectations

#### FRANK HAYES

HAT ARE THE CHANCES YOUR IS shoo's next big project will be delivered on time, under dget and exactly to users' expectations? Pretty grim, grumble the industry analysts.

Mets Group says more than half of all new U.S. software projects will go way over budget. Standish Group says 52.7% of software piects blow these schedule or hudget.

11.1% are canceled and only 16.2% are completed on time and on budget. "How do we keep getting away with this?" Computerworld Executive Editor Maryfran Johnson asked a few weeks

ago. "No other industry does." Yeah? Let's check some num! How about sales owes? They're pretty good at turning leads into customers. en't they? Yeah, right - close to half the time, they get no results at all, according to several sources, including Dan

Dunn, associate professor of marketing at Northeastern University in Boston. writing in the journal Review of Business.

Zero. Bupkis. Wasted effort, no matter how much they spend. And what about new products? About 40% of the time. new products fail, according to

the journal Research and Technology Management. They just This may make you

#### cringe, but IS needs to better market itself.

don't make it. The cost of developing run is money down a rat hole. Worse still, it takes thousands of raw ideas to produce one commercially successful new

product. No 15 shop would ever get away with that many false starts Matter of fact, with only 31% of projects crashing and burning. IS projects

cross the finish line a lot more often than bound to fail sometimes:

sales leads or new products. But you don't hear any pundits howing that no other industry gets away with a 40% failure rate like new-product development. Nobody screams that something's got to be done about the horribly high failure rate in sales

SPIN OF THE WHEEL Why not? In a word: expectations. People expect sales and product devel coment to fail. Those are highly specula

tive games, where luck and a good spin of the wheel are all that stand between success and failure. Sales and new-product guys can im-

prove their odds with hard work, talent and preparation. But everyone knows that a lot of the time, the

deal won't close, and the product won't fly Software projects are viewed as

something more like an assembly line - as if we knew how to build new, unique systems the way we stamp out widgets. Instead of cheering a 60% completion rate, we panic at the 31% failure rate as if it were a qualitycontrol crisis.

How can you reverse that view? How can you get users to understand that systems development today is a gamble one that may have big payoffs, but is also It may make you cringe, but what you,

need is called "marketing Let's face it - we're a little shy when it comes to users. As a result, their understanding of what IS does is even worse than our grasp of what they do. And at a time when we have to rebuild systems on the fly, when business requirements and technology change far faster than we can crank out new systems, that bashfulness

translates into unrealistic expectations Getting users to understand is tough. Some IS shops actually here marketing consultants to help them get their mes-\$300 ACTOSS But you don't have to go that far. You

can hold internal technology fairs to show off successful systems and help break the ice with users, or do it one-onone by involving users at every stage of the development process, so they can see what's going on. That won't make the technical side of

development any easier. You'll still have to sweat out the nuts and bolts of building systems, and sometimes you'll still blow the budget or the schedule.

But you'll have a better chance of delisering what users emect []

Hayes is Computerworld's stoff columnist. His Internet address is frank. hayes@cu.com.

#### Senator, you can't plug in here

Key members of the Senate Rules Committee Thursday teld Sen. Michael Enzi (P. Wyn.) that he couldn't use his laptop while in the hallowed Senate chamber. Enzi-asked permission to use the laptop to conduct legisla-tive business more officiently. Some colleagues were at s loss to explain why laptops shouldn't be used in the chamber, but one said the dicking noise would be into-erable. Ironically, the Senate chamber already has four lastop computers that are used by staff

#### Emergent to run domain system

The Council of Registrars (CORE) has signed a letter of tent with Emergent Corp. in San Maten, Calif., to velop and operate a Shared Registry System for Internet domain names. CORE is made up of 79 registr that would administer the domain name registrat system under an agreement signed in Geneva last spring. The National Science Foundation's contract with Network Solutions, Inc. in Reston, Vs., to adminisain name registration expires next spring.

#### Truste seeks Web controls rest consortium Truste last week faunched a dri

customers more control over the informati rid Wide Web-based businesses collect online The Palo Alto, Calif.-based group said its Trustmark systern has been adopted by few enline retailers so far. The group warned that the Federal Trade Commission has taxed to step is if there are no clear signs of industry self-policing by Merch.

#### API allows shared Unix/NT apps

Five major hardware vendors last week associated they

will support OpenMP, a programming standard tha will let applications run on different types of multipro cassing hardware. The industry-standard application programming interface is simed at developers who write shared-memory applications for Unix or Windows NT. The OpenMP standard was jointly developed by Digital Equipment Corp., IBM, Intel Corp., Silicon Graphics, Inc. and Kuck & Associates, Inc. in Cham-

#### Feds probe IBM sale to Russia deral grand jury in Washington is investigating t

sale of 16 advanced IBM computers to a Russian nuc ar wespons laboratory. At issue is whether the Russi lab evaded U.S. export rules. A spokesman at Russi Atomic Energy Ministry sald Russia bought U.S. super-computers legally. IBM officials had no communt. The U.S. government must approve computer sales to Rus-sian nuclear weapons facilities, according to State Department officials.

#### Schmidt: Novell will go it alone

Novell, Inc. CEO Eric Schmidt said the struggling co ny won't depend on large partners or alliances to as-nd its business. Speaking to reporters at a press con-ence in London last week, Schmidt shrugged off mors of a Novell takeover by IBM, among others. "We are one of the largest software companies in the world. Size does matter, but with our other partners and resellers, we are a luge, huge operation, and I do not see the need for big partners," Schmidt said.

#### Big Blue stays true

During the stock market fray last week, 1834 repur-chased \$3.5 billion worth of its common stock. The

more continues a program by Big Blue to buy back IBM shares in recent quarters. But the recent major purchase also hislped show confidence that the pre-nounced market swings on Wall Street last week won't be large term, expended. be long term, especially considering that ISM is a tech-nology believether stock, observers said.

#### Year 2000 tests for net sear Bell Atlantic Network Integration, Inc. (EANI) iast week

Bell Allattic Inservers Immgration, Inc., (bit-ray sax managed the Network 3000 Assessment Program, an initiative to assess and solve year 2000 problems. Frazer, Pu-based BANI sold it has compiled a database with more than Boo network hardware products that could be affected by the millionnium date change. BANI said it uses the data to determine the depth of the prol lem and to plan for upgrading or replacing nance ant products to make the network entirely year a

SHORT TAKES Univys Corp. will train and certify up to 2,000 professionals on enterprise products from Microsoft Corp. as part of a joint initiative. . . . Bell Microsoft Corp. as part of a joint initiative. ... Dell Computer Carp. plant is announce its version of the NeEPC this week, designed to reduce cost of commission through built-is software and hordware management frostures. ... IBM is shipping Release 2 of its CICS Transaction Server for the OS/390 mainframe operat-Immiscons server on the Osygon mammane opera-ing system, which supports the parallel payables cluster-ing scheme. . . Electronic Beta Systems Corp.'s third-quartar earnings fell 7.4% to Sas6.3 million but still managed to beat the consensus estimate of ana-lysts by 5 cents per share, according to a pell by First Call Corp. in Boston. . . Newseyx, the joint indepen-dent start-up formed earlier this year by Nevell and Netscape Communications Corp., last week said it would include a full varsion of Oracle Corp.'s data in its forthcoming Enterprise Pre Server Solution.

## "Psst ... Wanna Buy Some Time?"

#### You Need SoftFactory/2000

There's more than one way to buy time – but you gotta know the secret. Word on the street is that SoftFactory/2000' with Smartfa/2000" is the only way to go if you are going to get your Y2K projects completed quickly.



The SoftFactory/2000 solution is technology-based, requiring less manbower

compared to other opproaches which are primarily manpower-driven

which are primarily manpower-driven supported by a little technology. SoftFactory/2000 is so fast and so accurate, it's like buying time between now and the year 2000. That's because SoftFactory/2000 is the only Y2K solution which uses SmartFind, an intelligent problem-sofwing exchanology the; filters your code to identify only true date fields and only the date occurrences that need to be fixed.

Compare that to other approaches which rely primarily on slow and expensive manpower... assuming you can find qualified people in the first place.

Time is running short, but we can get you to compliance before the year 2000. Call us at 1-800-632-6265 today.







MICRO FOCUS

Transforming The Enterprise

O Hicro Focus 1997. All rights reserved.

## Informix to come clean on financials, repricing

#### By Craig Stelmen

IT'S SHOWTIME for Informix Software Inc. as it tries to get back in the good graces of database users. The beleaguered vendor this month is expected to finally announce a restate-

ment of its financial results stretching databases into a single product structure back to 1995 That will be followed by a promised software repackaging and repricing aimed at simplifying Informix's product lineup [CW, Oct. 13].

Sources said Informix will put its four

built around a core software engine and a menu of optional add-ons That move is expected to reduce the base price of Informix's object-enabled

costs \$1,000 more per user than its relational only software. The repackaging also reportedly will include an effort to relaunch Universal Server for mainstream uses rather than

the multimedia and World Wide Web applications that Informix nerviously touted.

For users such as Brad Jensen, a vice president at AMR Corp.'s Sabre Group subsidiary in Fort Worth, Texas, Informix finally appears to be getting things

about how you can use

for AMR's American Airlines unit, Multimedia isn't in the picture at all. But the ability to store airline p functions and calculations as database

data," Jensen said Universal Server's object technology applies beautifully to advanced transac tion processing," said Janice Richardson, Universal Server technology, which now manager of systems and operations for the city of Aurora, Colo. "But Informis flunked basic storytelling, and secrets

don't sell." Price also has been an issue, Richardson said. Universal Server could provide faster performance, "but I don't have the

money to do a \$1,000-a-user tump on a 300 user license," she said. Informix, in Menlo Park, Calif., is expected to cut the base price of Universal Server by turning standard multimedia plug-in modules into add-on options. Officials wouldn't comment on

Monitors to track frame-relay service levels on WANs

"Informix needs to brag

(Universal Servert for business advantage, not just to make funny Web sites. tensen said. Jensen is using Universal Server to develop an object based data warehouse

objects should speed up programming

#### By Patrick Dryden

MANAGERS OF wide-area networks. under pressure to meet service-level agreements for internal users, must make sure they get the best frame-relay service from providers. Two popular tools that monitor

frame-relay WAN performance are being enhanced this week to bet ter track key service-level agreement statistics via a

printout, management console or web Marlhoro Mass, will introduce the Ser-

vice Level Reports option to Network Health, a software suite that analyzes network performance. Instead of building reports manually, Network Health users will be able to summarize service quality information

on a single page for executives, engineers And Visual Networks, Inc.- in Rock-

ville, Md., will announce an upgrade to Visual UpTime, a hardware and software package that takes the pulse of a WAN at every entry point.

Visual UpTime users will be able to validate service levels over time by measuring and archiving three vital statistics

— availability, effective throughput and delay - for both the complete network and individual circuits.

'An objective view of service levels enhances our credibility, inside and out," said Mike Kaltenbaugh, director of enternications at Columbia Gar MANAGEMENT System in Reston, Va.

The energy services company sta monitoring AT&T Corp.'s frame-relay service a year ago with Visual UpTime. It now has 118 sites under surveillance As a result, Kaltenbaugh said his roup gets credit internally for proactive ly detecting slowdowns and publishing

WAN uptime numbers. It also gets respect from AT&T for identifying problems accurately Concord officials said the con spects to ship the service report opti

for Network Health next month for \$6 000 Visual Networks plans to upgrade Visual UpTime users for free next month. O

sage charges. Use your incernet connection - or create your own private network. With Fabrik Partner Network, the choice is yours. fabrik

ral Tired of the hassies and expense of X.400 or o

With Fabrik Parmer Network, you don't have to make o

cices about digital signatures or encryption schemes. And you n't have to install or manage expensive hardware or software.

FPN links your existing e-mail system to your business partners

fy creates a secure trading circle. Features like m

tracking and project-level billing let you decide how to affocate m

Call now and try FPN free for the rest of 1997! 800.563.7167 · www.fabrik.com · fpn@fabrik.com 200 light Communities in 12 had been him 120 had former Co. Will Age Will a statement of the Communities of the Communities in the Communities of the Communities in the Communities in

courier service.

## "We're Forté for the Web!"

any companies are saying. "We're jiuut like Fonte, only for the Wech." What they mean is that they're tangeting scaleble, reliable, mission-critical applications for the Web. Trouble is, they're talking futures. Metarwhile, Forté customers have already developed and deployed robust, component-based Web applications today. Constonent like Elli Jill, HOME Account Network, Marda, TransCanada Pipelines, Banco do Boston and World Bank, to name just a few. Soi if you really warm Forté power on the Web, the only lace to get it is. Tomo Forté.

Click here to see what industry analysts say about Forté or to view our latest <u>Web White Paper</u>. Better yet, sign up for the next <u>Forté seminar</u> in a city near you. Or call 800-622-5076, today.

Because only Forté has what you need to develop enterprise Internet applications, today.



F Ø R T E

This site is best viewed with Netscape Navigator. Download Netscape Now!



E 0 10 12 4

QCFFF Facts Selvers, Inc. Facts in a regulared resistants and Facts Application Engineered and Eas Facts large are technologic of Facts Selvers, Inc. Form materials to US and STRANGE All other mediums in advantability.

## **Headhunters stake out Citicorp**

#### Layoffs prompt outside recruiting frenzy to snatch up good IS workers

BUNGRY RIGH-TECH bead hunters are swooping down on Citicorp's IS operations, even though it is still unclear exactly who is on its hit list of a non

By Julia King

workers to be dismissed You're going to find ferocious headhunting firms just bling in. I'm sure some of them were stready in there he-

#### How to hang on to IS levees after downstales

- Communicate to works how valuable they are
- nuses to prove It
- Schedule care

fore the press release was even typed," said an information sys terms staffing specialist at a large New York entertainment

In the past several days, recruiting calls have been pouring in to workers at Citicoro's technology infrastructure group in New York. One IS manager de-

scribed the mood there as alum since the company's Oct. 21 ancement that it plans to lay off as many as 9,000 workers. Some of the deepest cuts are expected in IS ICW, Oct. art. "In any situation where

there's a downsizing or a merger or any significant change, you'll see people become a target," said Alan Johnson, managing director of Johnson Asso ciates. Inc., a compensation consulting firm in New York. And in the Big Apple, home to hundreds of banks, financial service companies and other big

business enterprises with mas sive IS operations, the competi tion for Citicoro IS workers will be especially keen given the severe shortage in many informa-

tion technology labor categories. KEEP THE GOOD ONES

The challenge Critrory faces now is how to hang on to the IS employees it wants to keep More money, Johnson said, would be an excellent opening eambit. The sooner the better. "After a downsizing an scement, there's no sens in waiting if you're going to make promotions or salary ad justments," be said. Typically,

companies offer 5% to 15% increases in base salary to workers they want to keep, he said. Citicorp spokesman fack Morris said the bank hasn't set notified the workers whose jobs will be eliminated as a result of consolidating dozens of back-

current " Slack said

To register, computer profes

they can donate into a Web-

based database. Nonprofit

groups also will register at the

gether back-end software that

"Frentually, we'll also put to-

office computing operations and Several analysts said they expect a significant number of the turing will take place over the announced lavelfs to come from

Citicorp operates in nearly 100 countries, with retail banking operations in 55 of those Many of those international units also operate IS and backoffice facilities, which will be consulidated to cut costs, ana lysts said D

Senior Editor Thomas Hoffman contributed to this report.

#### Manufacturers turn to 'net for improved supply chain Sv Randy Weston their business, and sa% said it

MANUFACTURING hasn't been

tion." But he didn't disclose

considered cutting-edge since the days of Henry Ford's assem bly line. But some manufi turers are bucking that tradition and turning to the Internet to improve the supply chain that connects customers and They are finding internet

processing centers. The restru

next 12 to 18 months, he said.

In the meantime, Morris add-

ed. Citycorp wants to retain "as

many people as we can, if

they re willing to undertake re-

training and underen reloca-

where workers would need to

move or what kind of training

they would need for continued

technology an easy-to-use supplement to costly electronic data iterchange (EDI) systems or infrastructure upgrades. For example, Mott's North

America Inc. in Stamford Conn., is using new Internet apin and set op a Web page, we'd plications from SAP AG to ex be able to continuously keep it tend its R/s enterprise resource planning software system to customers who now can view sionals will enter their skills, the status of orders from a contact information and how World Wide Web browser. many bours a week or month

OING ALL THE WAY "We have full EDI part have had for years, but this allows us to open it up full bore," said Catherine Ricedan, director of butiness solutions at the food

sting compar "We are looking at using it for smaller partners who can't go EDI" because of the cost and complexity, she said. "We are also looking at taking it to our purchasing and supply side to start placing our orders and to

manage our supply chain over the Internet." Analysts predicted that more and more manufacturers are gome to turn to the Internet for real-time data interchanges with suppliers and customers as competition forces them to

For now, many are reluctant to adopt the technology. In a survey of 253 midsize manufacturing companies by Grant Thornton LLP in Chicago, 51% said the Internet had no impact on

had little impact. Most companies still see in-

formation and software as the enterprise," said Richard Mathieu, associate professor of information systems at the University of North Carolina in Wilmington, "But every business partner is a part of la manufacturer's] enterprise."

But not all manufacturers are hanging back. Vixel Corp., a Sothell, Wash., maker of Fibre Channel storage products, has grand visions for using the Inmet across all its operations.

> The impact of the internet co m



It is setting up extranets to link its suite of Oracle Corp. applications with customer appli-"We want to collapse the sup-

ply chain as much as possible. said Don Wenninger. Votel's chief information officer With the previous system, if one of those manufacturers had

a problem getting a part, it took adopt more of a make-to-order up to two weeks for Vixel to be able to notify the customer of a change in delivery date. Now. that parts problem is immediately translated into a new delig ery date that is sent directly to the customer. Cl

ONLINE COLLABORATION

## IS volunteers get on board Web TRAIN

INFORMATION SYSTEMS MAN ager Gordy Dhatt has been giving his wife's nonprofit agency free technical help for the past to years

Now he wants other IS profesonals to do their part

behind the Technical Resource Information (TRAIN), a group of IS professionals who volunteer their time and expertise to nonprofit organuations, such as the Spokane. Wash., neighborhood action group where his wife works.

"Nongeofite traditionally do not have IS expertise in-house to solve their problems or the budget to buy it." said Dhatt, who over the years has advised his wife about setting up PCs and networks. He came up with the idea for TRAIN after last summer's presidential summit on volunteerism.

DO WHAT YOU KNOW

"I came to the realization that my own volunteer activities are

better aimed at doing what I know how to do and do well rather than dishing up soup. he said. Dhatt works full time at Goodale & Barbieri Gos., a botel and property may Later this month, other IS ssionals will be able to reg ster as technical volunteers and

trainers at a TRAIN World Wide Web site now being developed free of charge by designers at Aurora Development Group. Dhatt is one of the key drivers also in Spokane.

The TRAIN site, which is scheduled for rollout later this month, will be bosted by Aurora est com

will allow matches between vol-Although the idea to link IS volunteers and nonprofits becan in Spokane, "The Web technology is such that it could literally be a global effort."

"Part of the objective of TRAIN is to teach people like me exactly what we could do with technology," said Nancy Slack, a TRAIN board member and the marketing and commu-

pications director at Spokane's YMCA Inland Northwest. "We want to get nonprofits to a point where, if someone came

unteers and nonprofits to be made automatically," said Aurora project manager Kris Rudin

An electronic chat room and electronic-mail archiving capa bilities also are in the works so that TRAIN members can send memos and convene as a group electronically rather than mee in a physical place.



Compaq NICs for each and

	10BaseT	10/1001X	Token Ring	FDDI	1
PCI		•	•	•	1
ISA			•		1
EISA	•	•	•	•	1
PC cord			•		1

Regardless of the network you have—be it Fast Ethernet, Ethernet, Token Ring ' or FDDI—you'll find an affordable Compaq Netelligent NIC with up-to-the-minute technology that will maximize your performance and efficiency.

Since Campag selfs more PCs and servers than any one else on the planet, it may not surprise you that we self over one-third of all the installed-server NICs in North Americo. Whichever NIC you need, Campag has you covered. Our NICs support every major operating system and every major bus type.

And because they've been tharoughly tested for compatibility an papular open platforms, all deliver ease of integration and high performance. What's more, each othering reflects the very latest advances, such as Adaptive Performance Optimization in our Faul Etherent NICs, redundant server support in our PDID NICs and Secolable Clock Architecture in our Seles Ring NICs.

In the end, you'll be hard pressed to find a group of NICs that are as comprehensive and innovative. Or far that matter, as friendly.

For more information about the entire family of Compaq Netelligent products, visit us at www.compaq.com/products/ networking/ or call 1-888-556-5541. Campaq. The world's leading computer seller.

COMPAQ

© 1997 Compag Computer Corporation All right assessed. Compaging reported (1) 5 Press and Technolol (Three Noted Sport as including all Compaging Compaging

## Java developers keep faith despite vendor war

By Sharon Gaudin and April Jacobs

SOME DEVELOPERS building shrink-wrapped Java applications say they are nervous but will forge shead despite the game." soft Corp. and Sun

Microsystems, Inc. that threatens to derail Java's platform-

In the wake of Sun's breach-of-contract lawsuit against Microsoft filed Oct. 6 and Microsoft's countersuit filed last week, independent

they are recline from watching the battle. But overs said once the dust settles. they will keep devel-

oping Java-based applications There's too much value with Java. We can't just pitch it," said Shaun Maine, chief operating officer and president of Sanga International, Inc., a Barbadosbased 100% Pure Java program

leveloper that specializes in the finance and telecommunications industries. "We're telling our users not to go with Internet Explorer. We just tell them we don't want to get involved in that

ers go with Netscape Communi cations Corp.'s

Navigator, they won't have to worry about being able to run lava applications In its suit, Mi-

crosoft charged Sun with breach of contract related to Sun's bicensing of its lava programming language. claims

that Microsoft's version of lava in the latest version of its Internet Explorer browser doesn't comply with Sun's lava standard. Microsoft now says Sun didn't deliver promised lava technology. Regardless of who wins the spitting match, Java developers and users are left wondering if their supposedly write-once. run-anywhere applications will run the same on Navagator as they do on Internet Explorer

lava is a new technology, and it makes anybody using it professionally nervous because it's so unknown," said Kevin Perry. producer of author Torn Clancy's online company Red Storm Entertainment, Inc. in Mornsville N.C.

"When you add in the infighting, it makes it even more of an unstable platform. Unfortunate-

ly, we're not in a position to be able to pull back. We don't have the resources to just hang out until they finish this fight. We have to move forward into an

unstable environment," he said. Perry said Red Storm has several online business sentures in the planning stages and will think them through carefully before plunging ahead. "[Internet Explorer 4.0] has definitely caused us some anxious moments," be said.



next great development plat-form," Colton said. "We're com-Malcolm Colton vice presi dent of marketing at Cloudscape, Inc., an Oakland, Calif. pletely committed to it. Worst Java software developer, said case for us is it splits Java into there is no way be will back off two platforms, and that's still from building tava applications. way better than the existing situ-Tava is destined to be the otion "F

#### Sun staggers, OMC makes haste As expected, Microsoft countersues Sun through ISO approval process According to Microsoft, the

By Carol Slive

IT WILL BE at least a month before a federal judge might be in a position to rule on the U.S. Justice Department's anticom-petitive complaints against Mi-Crosoft Corp. The Redn

nond, Wash-based company has until next Monday to respond formally to Justice Department charges that it violated a 1995 consent decree by requiring PC makers to license and distribute its Internet Explorer browser as a condition

of licensing Windows oc. The Justice Department then

will have to days to snewer Miemsoft's response. The parties are due back in court Dec. 1, at which time a federal judge will decide how the

case will proceed.

Microsoft's initial memoran

dum, filed last week with the court, states that the fustice Department had full knowledge more than bee years ago" that Microsoft was incorporating In ternet browsing technology into Justice Department didn't disoute Microsoft's right to design its operating systems to include Internet browsing functionality, and the consent decree doesn't specifically bar Microsoft from veloping integrated products. fustice Department officials declined to comment on Microenfl's rem

But they have made known their view that the result - In-

ELATEDLINKS

ternet Explorer/Windows os isn't an integrated product, despite Microsoft's claims to the

To support its claim that Internet Explorer and Windows 95 are two separate products, the department points to evidence showing that Microsoft sensrately markets, licenses and distributes each session of Internet Explorer in wars different from any integrated features of its operating system products.

There is separate OEM and end-user demand for Internet browser products and for Windows 95, and the two products can be physically and commer cully senarated, the Justice Department said in documents

filed with the court A Microsoft spokesman said marketing information is "a pretty superficial way" to determine if the product is integrated into the operating system.

"Anyone who looks at the code will conclude that Internet Explorer makes fundamental modifications and extensions to the core functionality of the operating system," the spokesman said D

By Sharon Gaudin SUN MICROSYSTEMS, INC.

and the Object Management Group are wending their way through the International Standards Organization (ISO) standardization process. But the

OMG is moving at lightning speed compared with Sun. Sun, which is trying to become the sole submitter for lava language standardization, suffered a setback last week when the U.S. contineent voted

The matter is far from settled. however. Twenty-seven couptries have a vote. Six, including Denmark, France and Sweden. have approved Sun's application. The other countries have two weeks to submit their vote. Sun's Java rival, Microsoft Corn bailed the II S unto com-

ing that Sun is trying to monopolize the increasingly popular development language. Microsoft said an impartial organization should control law's standards process.

'Standards are a good thing

all the way around, expecially in the early stages of Java," said Dennis Kremer, a program

at Pittsburgh-based package shipper RPS, Inc. "It would be nice to be sure things you're developing will be standard with all the incomme tencies in lava virtual machines

Microsoft is making things more complicated," he said. Kremer said be is glad the OMG, a Framingham, Mass. based group of Common Object Request Broker Architecture

rendors and users, is sailing through the ISO process. Richard Soley, chairman and CEO of the OMG, said results of the first vote from member countries came through late last

Thursday." Sisteen countries approved the application, two approved it with comments, and two denied it with comments. Adding comments means once those ques tions are answered, the vote can

be changed to an approval. Solar said the comm which he saw in draft-form have already been answered. O





#### The New HP NetServer LXr Pro and Rack Solution

Intel 200 MHz Pentium\* Pro processor with 512KB cache and up to four-way multiprocessing
Also available in 1MB cache versions

HP NetRAID PCI Disk Array Controller with three Ultra SCSI channels, connects up to eight drives per channel

Up to 10 I/O slots: six bus master PCI, four EISA (one EISA slot reserved for system)

LAN Support and Comprehensive Network Support available as HP SupportPack

128MB/512MB ECC memory expandable to 4GB Three hot-swap Redundant Power Supply standard

www.hpresource.com/racks

HEWLETT

## Who's minding the database?

#### Dearth of administrators forces companies to bring in consultants

By Craig Stedman

A SHURTAGE of skilled database administrators is forcing companies to bring in highpriced consultants or put off work while they search for warm bodies to fill jobs. Like the application develop-

"We're competing with Silicon Valley [vendors] for resources, and we just can't get resumes in here."

— Bruce Watson, The Gao

hand-in-hand with, database adrators are in short supply and have ample opportunities to jump at higher-paying offers. But their shortage can be even harder to take because databases have to be sended to

day in and day out, leaving information systems managers with little breathing room when a database administrator hits the road.

For example, The Gap. Inc. had to turn to outside contractors to bein do normal maintenance work on its production databases after slew of its 11 datahose administrators

> defected this year. "That's some thing we've never done in the past," said Bruce Watson. senior director of ination adminis-

tration at the San Franciscobased clothing retailer. "But it's the only may we can cover everything the way we have to." The contractors cost \$125 to \$200 per hour, he added. Watson said it has taken The Gan about on days to fill data-

base administrator openings. despite combined bonus offers that range from \$100,000 to \$185,000. "We're competing with Sili con Valley (vendoes) for re-

sources, and we just can't get rerumer in here" he end The company now is considering training sunsor-level staff members to fill database adminestrator slots

But turning to internal training usually doesn't keep information systems departments from running up their database ninistrator consulting tabs, said Sandy Laufer, an analyst at Gartner Group, Inc. in Stam-

"Even though it takes money out of your wallet, the only thing you walls can do to him the bull let on consulting dollars to help your people over the rough spots." Laufer said. The need to have the consulKEEP 'EM ON THE FARM

Techniques to find and keep database administrators

- Pay up-front hiring bonuses I Give extra pay for being on call
- 8 Award time off for nighttime call-ins
- Offer extra vacation and flexible hours
- Provide advanced technology and tools

tants on hand should eventually be set up, she called in an Infor diminish, "but they do tend to mix consultant to work for a stay there for a long time," she month at a government dis-

count rate of \$200 per hour Database development work "Projects were starting to get deand performance tuning for the laved," she said. city of Aurora, Colo., ground to a Even worse, the long search halt for nearly four months for a skilled database adminiswhen the database administratrator didn't turn up any suitable tor who managed the city's In-

prospects. formsx Software, Inc. databases Richardson eventually decid left, said Janice Richardson, ed to train an existing city em manager of Aurora's systems ployee, another four-month process that is still under way.

There are still gaps in his "Essentially, nothing new got done," Richardson said. "We knowledge, so I have to pick just maintained the databases." things up for him," she said With new hardware sitting "It's not a great situation, but it's what we have to face." idle and applications waiting to

## Business chat gaining favor in Corporate America

communicate in real time: The recipient can see the sender typ-ing in the message. Workers can use it to get information fast from colleagues, thanks to "buddy lists" that let them know when their peers are online.

Beyond corporate boundaries. chat gives companies a way to "talk" to customers and trading partners without the expense of telephone calls or face-to-face meetings This could be useful if you

want to have a sales meeting but don't want to fiv people to a ceptral location," said Aaron Wiltz, a technical analyst at McDonald's Corp. in Oak Brook, Ill. Electronic mail does that, too.

but not in real time. E-mail is negally handled in store-andforward fashion, which means mail goes to a "poet office" and is redirected to the addresses. That could take five to so minutes, whereas chat is instantaneous. And in certain markets. such as online trading and online shopping, real-time dialogue makes a difference (see story, Cover 1). Business chat is most com-

monly used as part of a World Wide Web-based customer service system or with electroniccommerce applications, said

this week from Lotus Developunirations Inc in New York. "Chat can spur commerce ment Corp. and Oracle Corp. because customers can get an-Both companies are expected to swers to questions they have reveal plans to bundle Ichat. about products while online." Inc.'s technology with their she said. It also can foster better messaging servers, which are

50% of the online population will use that by a ooa. Until now, chat has been viewed by most as a complement to E-mail and groupware not a replacement. Pushing chat

Kate Doyle, an analyst at Jupiter

client relationships and help due by year's end. companies market products, Doyle said. She predicts that NO HASSLES Qualcomm, Inc. also plans to bundle Ichat's software in its porcular Internet mail client. Officials at EShare Technologies.

more directly into the corporate vendors about possible bundles.

also is talking with messaging

THREE WAYS TO COLLABORATE

spotlight are announcements Users like that chat delivers basic collaboration without the overhead and integration hassles associated with full-fiedeed groupware systems such Notes. Generally, no special client software is needed for chat.

and operations division.

Users can participate via a Web browser with a plug-in. It is a better alternative than E-mail, not only because it is real time, but also because chat can be limited to communities of people who want to work to-Inc. in Commack, N.Y., said it

arther. Anybody can access Email in-house. "I think we regained our in-

vestment in about a week," said Tony Nunes, director of techni-cal services at Pristine Capital Management in White Plains,

The company runs a virtual trading room on the Web using software from Houston-based Ichat. Printing charges about \$500 per month for the service, which sives subscribers access to real-time trading tips, commentary and questions and answers. Nunes said chat is better than E-mail for that purpose because "seconds count in the

stock market.

There is an immediacy that is lost on E-mail," said Bruce Ekstein, director of promot research at MCA Records in Universal City, Calif. The company will supplement its Micro-soft Corp. Exchange network with chat software to improve the flow of information at the company, "Sometimes people don't read their E-mail for

days," he said In the case of Mail Boxes Etc. chat ensures that franchise owners can participate in meetings and distance learning provided by the home office, as long as they have a browner.

If the company tried to do something similar using its Lo-tus CC Mail network, it couldn't be assured that all its store ownere could participate, said Donn Hopkins, the company's web-

#### · Real time . Works with E-mail . Tells you when co ers are online

Con · No chat standards (Interoperability among products isn't

guaranteed) se users complain o

being bombarded with

 Supports multimedia messages · Good int · Not real time

· Doesn't tell you when co-workers are online

and manage

. Expensive to develop Often proprietary

## Dell, HP target corporate users with thinner, lighter laptons

 New models due this month feature 233-MHz Pentium

By Kim Girand

THIS MONTH USERS will be able to get their hands on two more thinner and lighter corporate laptops — packed with the new axt-MHz Pentium processor from Dell Computer Corp. and Hewlett-

Features of all three

# 233-MHz Pentium processor

# 2.1G-byte to 4G-byte hard drive

Round Rock, Texas-based Dell today

introduced its Latitude CP line, and Palo

Alto, Calif-based HP will roll out its

OmniBook 3000 CTX series. Both mod-

els target corporate users and cost less

thick: Dell shaved an inch and two

has a 13.3-in. active-matrix LCD screen, a a.tG-byte hard drive and a second bay for batteries, allowing six to eight hours of

HP, which is trying to boost its presence in the laptop market with a redesigned product line and pricing strategy, is offer-

ing the 6.8-pound OmniBook 3000 CTX

HP's 233-MHz model comes with a 4G-byte hard drive and 3aM bytes of

memory. It costs \$4,700; the 200-MHz version with a 2.1G-byte hard drive costs.

"The pricing's not bad at all," said Jer-ry Filler, an information systems manag-

er in computer operations at Progressive Insurance Corp. in Mayfield Village, Ohio, who has a beta copy of the new HP The company's insurance adjusters use HP 5700 and 5500 notebooks because of their high-contrast screen dis-

with a Pentium MMX processor.

The Latitude design is just 1.5 inches

unds off the old model. The notebook

s 13.3-in. display

s 6 to 7 pounds

than \$4.700

continuous use

\$3,799 to

\$4,999

Jose, Calif. Now the company is trying to make inroads with a separate mobile business, he said.

Also this week, Digital Equipment Corp. is rounding out its laptop product line with the HiNote VP700 series, which has a ass-MHz Pentium pro-

The VP700 falls between the compa

ny's higher-end Ultra 2000 series and VP300 value series. The VP735 has a 13.3-in. color screen and a 4G-byte hard drive. The VP715 has

The 166-MHz model costs \$3,799; the 311-MHz machine costs \$4,999.

O Uppers expect to see a business version of Apple Computer, Inc.'s

#### Packard Co. LAPTOP LINEUP \$4,699 ATTEND COMNET'S 20TH ANNIVERSARY EVENT \$3,700 to Book 3000 CT \$4,800

#### Be A Part of History - And The Future

Broadband, Wireless, Internet, Intranets, Extranets, Push and pull technologies. There's unparalleled opportunity in the communications and networking technologies now

gaining in sophistication. And momentum. ComNet's 20th Anniversary Conference and Exhibition The Enterprise Network: Front and Center - gives you the unparalleled opportunity. Whether you're a builder, buyer, planner, or manager of an enterprise network.

Immerse yourself in 9 information-packed confe Listen to a distinguished cadre of speakers including 3Com's Chairman & CEO, Eric Bonhamou, Marimba Inc.'s President & CEO, Kim Polese and Bell Attentic's Vice Chairm President & COO, Ivan Seldenberg, Join Vinten Cerf, the father of the Internet, and ethernet inventor and Internet contraren Bob Metcaffe as they square off in a lively discussion, moderated by Stewart Alsop, about the Internet's future and what that future will mean to you. And accompany 50,000 of your colleagues to view over 500 exhibiting companies at the #1 show for new product launches.

- # #1 Show For New Product Introductions ♦ 9 Targeted Conference Tracks
- Network Management and Design \* Switching Tools/Technologies/Strategies \* Collaborative Networking \* The New WAN \* Enterprise Intranets \* Network Reliability/Performance \* Remote Network Access and Security + Glob mm; Issues and Answers • Open Forum
- ♦ Intranet Village (co-sponsored by Network World and Vertical Nat

A gethering of companies with products to help you design, build and manage your intranet. For general event information visit our Web site at www.comnetexpo.com

or call 800-545-EXPO.

rdia Spensors:			-	
O INTE	ETREE	HONEN	# D	
		-		
WEEK HINERY	Forts	S For	bes [	į
th Anniversary Sponeous		Spensor:	Cons.	
BM ascom T	mepie	K )	niversi	Ò



Council & Produced by	Designation
# IDG	IDG
WOULD EXPO	
WOMEN EATO	

and Exhibition.    Attending © Exhibiting	CPP		
Name			
Tide			
Company	-		
Address			
City			
State Zip			
Thomas			

1400 Providence Highway, P.O. Ben 9127, Novembed, MA 00062 THIS IS NOT A RESISTRATION FORM.

play, but company executives carry Dell's Latitude machines. Analysts said HP is focused on improving its laptop product.
"Before, full-size notebooks were an afterthought for them," said Mike | McGuire, an analyst at Dataquest in San



Presenting our new expanded line of servers. Each day more and more companies realize

the power and advantages of running their operations with Compaq servers.

Today, over one million Compaq servers are in aperation. As the need for this more efficient and

intelligent form of computing has expanded, our line of servers has expanded to meet every demand.

The ProSignia 200 is our entry-level server, which your business can buy for the price of a desktop.

For workgroups, we after the ProLiant 800 and the new 850R, which is the first high-density, rack-ready workgroup server.

Moving up the arganization, we after the scalable and flexible ProLuant 2500 for departments and the ProLiant 6000, which delivers

excellent-price performance for midrange enterprises.

The Problemt 6500 and 7000 are the newest scalable additions to our line and establish solid enterprise capabilities. Each offers the highest

levels of availability for 7x 24 computing.

From the very beginning, Compag servers have set the standard for open systems computing. Today, Compag management software allows companies to keep networks up and running and costs down.

The days of having to run your business only on the big, expensive iron are over. The future with Compaq is a wide open, newly paved superhighway just begging to be traveled.

www.compaq.com/products/servers



## HE FUTURE ND STEEL.

© 1907 Common Company of the second Company represent 13.2 Pages and tracking the property of the last of the page of the pag

## Central storage cuts costs

IT OFFARTMENTS are hoping to turn their disk subsystems into veritable data melting pots. In the coming months, major storage

server platforms they support on one disk array, so users can centrally locate data from different servers - such as mainframes, AS/400, Unix and Win dows NT - in one box.

Most information technology mana ers have already seen an influx of district uted servers back to the data center. They say centralizing corporate data on fewer and more accessible disk systems is the next step [CW, Aug. 11].

That is what we would eventually like to do," said Art Louise, assistant vice president at Group Health, Inc. in New York. "We want to move some mainframe applications to open systems, but

let them keep sbaring the data." By co-hosting data, IT managers also expect to save floor space; get a better grasp of storage-capacity planning; im-prove management; and get more efficient use of their staff, analysts said.

Using just one box for storage is one of the first steps to true data sharing, said Linnea Nichols, a data center branch manager for Fairfax County, Va. Nichole heads up a committee of Share, IBM's mainframe user group, that is asking vendors to make storage transparent to

"It is a way of not only cutting ment costs, but of having more flexibility to respond to changing capacity needs of our various platforms," Nichols said. The problem is that many enterpri applications need data from several dif ferent sources, which requires time-

onsuming data transfers among plat forms and gives storage administ management headache (see chart) Managers complained that their file transfers over the network suck up significant amounts of valuable mainframe

MIPS To address this, Gulf States Toyota in Houston is using Encore Computer Corp.'s Infinity SP array to store and backup mainframe, Unix and Windows

NT data Data sharing "basically saves all the hassle of automating file transfers between different servers and their storag systems," said Bob Lane, director of in-

formation services at the automobile distributor Although EMC Corp. in Hopkinton, Mass. and Encore, in Fort Lauderdale. Fla., currently lead the pack in co-hosting data, more vendors are picking up their

Dace

for Sun Microsystems. Inc.'s Solaris operating system on its 7133 Unix disk arrays. And IBM is developing a version of the 7133 that will also store mainframe data. That system is expected to ship late

By year's end, rival Hitarhi Data Sys. terms Corp. in Santa Clara, Calif., plans to add support for Windows NT data to its 7700 arrays, which already can store mainframe and Unix data.

And Sun, in Mountain View, Calif. plans to expand its platform support beyond Solaris by buying Encore's storage ss. The deal, which should be scaled in the next month, will let Sun host mainframe data on a future line of disk arrays.

DATA JAMBALAYA



Base: 700 IS manager:

But the road to data sharing doesn't end by putting all the data under one roof

(see story below). That's because the data from different types of servers is partitioned within ese arrays. Some high-speed data transfer is still taking place, although it is over internal data channels instead of the corpurate rietworks. And natively reading the data still requires a compatible server

on the front end Although co-hosting storage add ne piece of true data sharing, data trans

fer schemes and software access must continue to improve, according to a re-port by John Young, an analyst at The Clipper Group, Inc. in Wellesley, Mars. II



THE LEADERS



Avoid the crash. Make mass Y2K change in-house with the process, and the rounged and a partner you can't still



# u p

The name of the game is Service. And the champ, revealed by a Computerworld Microsoft-trained service professionals than IBM, Compaq and HP. Combined. So call us at

s e t

diqital

survey,' is Digital—trouncing the best-known integrators in the business. We have more 1-800-DIGITAL. Visit www.digital.com/service/nsis. And get ready to win in a networked world.

## Novonyx delivers first round of products

By Laura Di Di

NOVONYX. the independent joint venture formed earlier this year by Netscape Communications Corp. and Novell, Inc., last week began shipping beta versions of its first software products. Novonyx, based in Novell's former offices in Orem, Utah, began shipping limted betas of Netscape Enterprise Server 5.0 for NetWare, a high-end World Wide Web server; Netscape Messaging Server for NetWare, and Netscape FastTrack for NetWare. Volume shipments are due by

Hacks. Enterprise Server 3 o will be fully integrated with Novell Directory Servaces (NDS) sa the Lightweight Directory Access Protocol (LDAP), he added. Early beta users and analysts said with Novoryn. Netscape and Novell have the

potential to go head-to-head with Microsoft Corp. in the holy contested Internet race. If Novonyx can deliver the goods, NetWare/IntranetWare users will be able to deploy NDS and the SuiteSpot servers as their Internet gateways, said Bob Sakakerny. an analyst at Aberdeen Group.

Inc., a Boston consultancy.

COMPELLING PRODUCT
Robert Forras, project leader for emerging technologies at Calvan Riein, Inc. in
New York, said he "jumped at the
chance" to test the Novonyx SusteSpot
servers. "The ability to add standardsbased, NDS-integrated intrants solutions."

Novenyx Netscape Enterprise Server for NetWare, Netscape Messaging Server for NetWare and Netscape FastTrack for NetWare will offer NetWare users:

 Web and application server that supports JavaScript

 supports JavaScript
 Scalable message server that supports internet standards

Office Protocol 3 and Internet Message Access Protocol 4

Integration with NDS and LDAP

 Admin Server, a common management console for SulteSoot server

NetWare Runtime capability to add Enterprise Server and Messaging Server to existing networks

on top of our existing infrastructure as

very compelling," Forras said.

Matt Rice, vice president and senior network manager of information system services at USTrust Bank Corp. in Cam-

network manager of information system services at USTrust Bank Corp. in Cambridge, Mass, agreed. He saud the combination of Netscape Web servers integrated with IntranetWare and NDS could preserve his investment in existing networks and reduce management tasks and training time.

"I currently administer my Web servers and my NetWare file servers as two separate entities. The Noromys software will save me a minimum of 10 hours of management time each week and free up my network administrators to do other tasks that I might otherwise have to outsurer." Bit or said.

Len Steinbach, director of information technology at the Solomon R. Guggen-heim Museum in New York; said that although he likes what he has heard so far about Novooyx's products and strategy he remains a skeptic. "I've seen start-ups come and go. They're wonderful entre-presential experiments, but I won't put I won't

any mnney down until it looks like more of a sure thing." Steinbach said. Hicks said pricing for Netscape Enterprise Server for NetWare. Netscape Messaging Server for NetWare and Netscape PastTrack for NetWare will be comparable to the rival Windows NT Enterprise Web Server, which results for \$1, 20.5. U



COMPUTERWORLD

What oils the system wheels for Chevron





As a major player in the oil industry, Chevron is used to difficult physical enveronments. The last thing they need is a tricky IT environment on top. So how do they analyze their vast range of data, found on almost as many tatforms? Through desktop clients - through Orbits.

orbix

Dublin Boston Porth San Francisco Hong Kong Frankfurt Washington DC Lor IONA Technologies at 1-800 orbit=10 info@iona.com www.iona.c





# Combine S

Powl

CardBox

- performance, who else

## Client/server disaster plans fall short

**Problems implementing disaster recovery** 

precedures in a client/server environme

I Lack of information on which systems are vital

as setting un special buildings

or but sites ready to assume

operations in case the primary

location fails, backing up data

regularly and storing it in fire-

safe, off-site locations, and es-

tablishing procedures to restore

key personnel and services

In a distributed environment

typical planning gaps include

things such as inadequate pro-

Widely dispersed systems

cedures for backing up data, nor

storing data backups off-site,

tack of virus protection, widely

dispersed and unsecured server

hardware, and a lack of contin-

gency procedures to restore ser-

"At the very minimum, users

a Too many systems/platforms

Lack of corporate support and staff

quicker than others

A DISASTER could strike your distributed computing environment just as easily as it could a mainframe data center. But chances are good your cornoration is far less prepared to deal

As user departments contin ue to load mcreasingly vital cor porate data onto Windows PCs and Unix and Windows NTbased systems, few are taking the precautions necessary to recover from a natural or man made disaster warned Fred lovan analyst at Meta Group, Inc.

in Stamford, Conn. In research this year with more than 100 Fortupe 1,000 clarate, less than 5% had "backto-front disaster recovery pence-

dures." lov said. Many are in the process of putting at least some of their most crucial client/server systems under the purview of formal disaster recovery procedures, he said. But the coverage

is nowhere as comprehensive as in the mainframe environment There is a real lack of knowledge about what kind of applicains are nunning on what kind of platforms and how entical any of them could be

vace after a disaster. Such holes could lead to dras tic consequences — including loss of service and data, analysts

should do regular backups. store (data) off-site and have and users warned. good varus protection," said A good disaster recovery plan Torn Oleson, an analyst at Inter-

Because few users follow

information on downed hard Gardano said 25% of the hard drives they to to salvage are

"Users don't get the concept that the machine they're on will stop, and it could be tomorrow. he said. His advice? IS managers should make lanton backun as sample and hassle-free as pos uble. Also, users should store

cartridge in a separate bag

The problem with protecting

widely dispersed, heterogenous

servers and PCs running a vari-

ety of software and operating

environments is that baying full

amount of their property insurance deductible - typically about \$25,000. But there is no

proce tag on lost data. "We try to work with users on doing frequent backups and back up the server when they're in the office " said Michael Lind a PC support manager at Trede gar Industries, Inc., a plastic and aluminum manufacturing

all of them may end up being The data center at the Leavas. extremely enough and unfeasible

na Department of Labor in analysts and users said Baton Rouge has special fire For example, Meta Group retardant walls and wiring But estimates that for some large or santzations, mainframe disaster like many other organizations, it doesn't have the same level of recovery procedures could easily top \$1 million annually. Mainframe disaster recovery proce-There is little to secure these systems from fire - or even dures toclude expensive up

from having unwarranted peofront procedures such as ple access them, said Charles special, fire-retardant buildings waring and sometimes even fully duplicated hot sites that can take on the processing load if a numary location fails. That kind of insurance can easily cost

large corporations \$1 million. While procedures for distrib uted environments should cost less, finances still can be a detertrent analysts said

> because of the number of eva terns involved and their scattered nature, it is impossible and madvisable - to provide the same kind of redundancy and up-front protection.

jumonville Jr. an operations Instead, disaster recovery manager at the Louisiana agenexperts say users should plan cy After a disaster, 'you can more fundamental recovery proalways go out and buy more redures and take a more priori hardware, but it is going to be tized approach to the problem real tough to replace software."

The site doesn't have to be fully equippped; it doesn't even have to have any computers. And it doesn't have to be large enough to handle all the affectedusers - just the most impor-

drive and a Loiack-type device

that wirelessly connects the lan-

tant ones

For example, Priority Pharmacy, a large mail-order plurmaceutical company in San Dieon backs up all its information daily. At least once a month, it updates all its information onto

one tage, which it then stores off-site in a fireness of safe Its servers run all its applications and databases. The servers are dispersed across multiple buildings on the company's campus and have enough storage and fail-over capabilities built in to them to handle a

failed server's load in case of an SIX-HOUR RECOVERY All that will allow the company to recover from a disaster in shout five and one half hours.

said John Williams. IS manager at Property Advanced Technology Labora tones in Bothell, Wash., doesn't have a hot site backing up its

server infrastructure. Instead, the company has contracted with a local windor to provide a basic "shell" building - comprising power and networking services - available in case of disaster. And it has agreements with local wendors for basic hardware, said Fred Deboer, director of IS project

Deboer said the company would be able to bring back at least some of its core information technology services in between 48 and 72 hours. "At this point, it is acceptable to us. I would give our (disaster recov eryl plan a 7 on a 1-to-10 scale," Deboer said. []

planning.

## Users, IS not doing enough to safeguard laptop information

DESPITE THE THREAT OF DOCsibly losing a year's worth of work and sensitive corporate information, analysts say many IS departments are doing little to nembers the data users carry with them no laptops.

"We do little backup," conceded Janet Wilson, information systems director at Mutual Insurance Corp. in Phoenix.

'it's (the employee's) responsibility to do it on a daily basis. Many IS shops take that view because it can be a nightmare for many large organizations to back up machines, said James Staten, an analyst at Dataquest

through, the result is "abssma" data loss prevention, said Scott Gatdano, president of Drive-Savers. Inc. in Novato. Calif. The company has rescued lost

drives since 1085 from lantons - about 1.200 within the past year.

all data on an external portable storage drive and carry the

The average Fortune soo company with 1,000 or more laptops typically loses about 14 lantons per year to damage or theft, analysts said. And most corporate IS departments pay out-of-pocket for lost laneous until the price tag tips over the

company in Richmond, Va. The

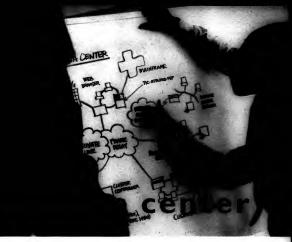
#### SAFETY TIPS FOR LAPTOP USERS g Keep current copies of important data somewhere

- other than your laptop
- g Quit programs before shutting down to avoid data loss and program corruption
- g When compressing data, make extra backups because
- compressed data is more difficult to recover
- g. Hever reformat your drive without testing your backup

#### 8 Don't move or jar a drive while it's operating

company, which has ten lanton to the network so when a tons also has considered enthief logs in, the machine shuts crypting sensitive files, he said. down. During the past two While encryption is one way years, more companies have to prevent data theft. Staten said started requiring workers to pay several vendors are developing for their own notebook insurgadgets to help track laptops ance premium at ao anoual cost These include a kill-pattch of \$75 to \$96, according to Bridevice that can be activated to an Haase, a senior account execerase everything on the hard

utive at Safeware, Inc., a Colum bus. Ohio-based computer insurance company.



## Data Networking

It's that critical place in the company where people, ideas and applications all interract. It's your data network, And you're in charge of it. Fortunately, ATAT Data Networking Solutions can help. We offer leading-edge services backed by technical expertise that extend all the way up to ATAT Labs. We'll work with you to develop solutions flexible enough to evolve as your company grows. In fact, in Computerworld's first ever National Gustomer Satisfaction Survey, users rated ATAT the top provider in wide-area network transmission services. To learn more about our team and services, visit us at www.att.com/data, call your account executive, or ATAT at 1800-248-1832. For getting the most from your network, ATAT is front and center.



BY PRICING OUR 4-WAY SERVERS FROM \$12,999, WE AREN'T LAUNCHING A SALE. WE'RE LAUNCHING A CRUSADE.



It may sound trite, but we're fighting for you. To put an end to the prices that most customers are paying for high-end systems. Our ammunition? The Dell' PowerEdge" 6100 Pentium" Pro processor server. A high-end SMP server for \$12,999 that has four Pentium Pro processors, redundant hot-pluggable cooling fans, hot-pluggable hard-drive bays and ECC Memory. Need more? For an additional charge you can bolster your PowerEdge 6100 with an expandable RAID controller, redundant, hot-pluggable power supplies, redundant NICs and Automatic Server Recovery And now for another weapon in our arsenal exceptional service. We offer the BusinessCare\* 4-hour On-site' response option, standard Next-Business-Day On-site Service and 24x7 telephone support lines. And being one of the leading price/performance systems in the server category has helped make us the fastest growing major server manufacturer around. Did we mention we also have key relationships with some of the major players in the industry like Microsoft, listel, Oracle and Informix? Support a winning cause. Give us a call or visit our website.

- 200MH2 Portium\* Pro Proces
- 84MB EDO ECC Memory . 512KB integrated L2 Cache
- Dual integrated PCI Utra/Wide SCSI-3 Controllers . 4GB Ultra/Wide SCSI-3 Hard Drive
- . 24X Max/12X Min Variable SCSI CD-ROM Drive
- Intel Pro/1008 PCI Ethernet Adapter letel LANDesk\* Server Manager v2.52
- 10 Drive Bays 6 Hard Drive, 4 Removable Media
- . 10 Expension Stats 6 PCI, 4 ESA . • 3 Years NBD On-site\* Service
- 1 Year DirectLine\*\* NOS Support • 7x24 Dedicated Server Hardware Technical Telephone Support

- 4x200MHz Pentium Pro Proce • 128MB EDO ECC Memory
- . 512XB Integrated L2 Cache per Processor
- 'Dual Integrated PCI Ultra/Wide SCSI-3 Controllers . 9GB Ultra/Wide SCSI-3 Hard Drive
- . Dual Pror PO Bus
- . 24X Max/12X Min Vanable SCSI CD-ROM Drive Intel Pro/1008 PCI Ethernet Adapter
  - Intel LANDesk Server Manager v2.52 • 10 Dive Bays 8 Hard Drive, 4 Removable Media
  - . 10 Expansion Slots. 6 PCI, 4 EISA • 3 Years of NRD On one' Service
- 1 Year DirectLine NOS Support • 7x24 Dedicated Server Hardwork

\$**7499** 

- 4x200MHz Pentium Pro Processors 256MB EDO EDC Memory
- 1M8 Integrated L2 Cache per Processor . Dual Integrated PCI Ultra/Wide SCSI-3 Controllers
- + 3xSGR Litera/Wide SCSI-3 Hard Drives . Dual Peer PCI Bus
  - 26X Max/12X Min Variable SCSI CD-ROM Drive PowerEdge Expandable RAID Controller • Intel LANDesk Server Manager v2 52
  - . Intel Pro/1008 PCI Ethernet Adapter
- . Redundant Hot-Pluggable Power Supplies • 10 Drive Bass, 6 Hard Drive, 4 Removable Media
- . 10 Expansion Slots 6 PCI, 4 EISA . 3 Years of NBD On-site\* Service
- . 1 Year DirectLine NOS Support • 7x24 Dedicated Server Hard
- Technical Telephone Support

BUY TWO QUALIFYING POWEREDGE BIOU'S AND GET A POWEREDGE RACK FREE, CALL YOUR SALES REP FOR DETAILS.

TO ORDER TOLL FREE 800-937-1270 Mondo Zon Com CT Sat Klam-Spm CT Sun Warr-Som CT In Canada call 800-839-0145



you want when you want when the choosing your flevall is to make a mistake. It exposes the sestes of your company to significant via.

The fact is: every time an employee humbers onto the Internet, you are vulnerable to hackers. And not the curious hackers of the Eightles; twing's hackers are malicious.

Imagine an employee who funnels money from the corporate bank account. Or a competitor who pilfers proprietary data. Any breach in infosecurity can have serious consequences. In fact, 45% of polled Fortune 1000 companies have reported hacking, and they quantified losses at over 100 million dollars.

The best deterrent is the world's most secure firewall. The firewall that is the network security system of choice for major banks, financial institutions, and governments throughout the world, and the firewall that consistently beats the competition in security, performance and usability tests by Network Computing, Data Communications and Communications Week magazines.

What you need is CyberGuard, It's never been hacked. And we guarantee it will be one of the best decisions you'll ever make.

















POSTAGE WILL BE PAID BY ADDRESSEE

### COMPUTERWORLD

P O BOX 2044 MARION OHIO 43306-4144

bladalladblaalladaladalldadalll



BUSINESS REPLY MAIL.
FIRST CLASS MAIL PERMIT NO. 558 MARRON, OH

POSTAGE WILL BE PAID BY ADDRESSEE

# COMPUTERWORL

P O BOX 2044 MARION OHIO 43306-4144









# Cisco's Gigabit Ethernet delay won't hurt

Analysts: User need for technology isn't great yet De Rob Wallace

E-mail tool vendors merge

systems.

CISCO SYSTEMS, INC.'s delawa in developing Gigabit Ethernet networking products won't damage the company or leave

users in the lurch, industry analysts said last week Cisco CEO John Chambers recently told Computerworld that users shouldn't expect Gigabit Ethernet offerings from the company for five to six more

Gigabit Ethernet products, as the name implies, let users run networks at 1G bit/sec. using

By Barb Cole-Gomolski

THE RECENT ACQUISITION OF

Baranof Software, Inc. by Tally

Systems Corp. will result in a

one-stop shop for electronic

mail analysis and management

Hanover, N.H.-based Tally

ees, sells systems for taking in-

ventory of applications running

on companies' PCs. In April,

Tally introduced Veranda Enter-

prise Messaging Reporter for

tracking and reporting on E

mail, usage. Baranof, s to-

employee company in Water-town, Mass., sells a line of tools

for monitoring the health of

E-mail networks and World

E-mail management tools are

ecoming more important as

essaging usage soars and E-

mail becomes more mission

critical. Chris Selland, an ana-

lyst at The Yankee Group in

marry management took such

oston, said it makes sense to

Wide Web servers.

ms, which has 145 employ

tools, users and analysts said.

tried-and-true Ethernet technology. The wares are most commonly pitched for campus back-

bones and for access to server The delays won't hurt them a tad because there are no users that absolutely have to have Gigabit Ethernet products to-day," said Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.I. "All that's going

on now with Gigabit Ethernet is tire kacking. "I don't expect the market to really take off until late 1998 anyhow," Nolle said.

as Baranof's with desktop asset

Tally's because it will help com-

panies get a handle on "previ-ously unmanageable" E-mail

Most of the leading messag

ine systems include built-in

management tools, but the tools

are proprietary. In contrast, Ba-

ment software supports multi-

ple mail systems, such as Lotus

Development Corp.'s Notes and

Chris Goulart, manager of

messaging architecture st

Thomson Financial Services in

Boston, said the move will let

to a new level. The integration of

the companies' products means

users will have one environ

ment in which to make sure

E-mail is up and running and to

track how their system is being

privately held, terms of the sale

used, Goulart said.

Because both cor

ren't disclosed. [2

sites take E-mail managemen

Microsoft Corp.'s Exchange.

ranof's line of E-mail manage

net component vendor Granite ystems in September 1996 for \$220 million. But when no products were forthcoming, ruors arose about problems between the two companies. The numors intensified as Cisco rivals 3Com Corp., Bay Networks, Inc. and a slew of start-ups announced Gisubit Ethernet products. Some small-er firms have already begun to ship the offerings. Chambers dism nors and said Cisco will deliver Gigabit Ethernet products after a standard for the technology is completed. That should be

by early to mid-1998, vendors "What happened with the

Gigabit Ethernet market wa that users were swamped in a tidal wave of product and tech-nology hype before a single product shipped," said Duniel Briere, president of TeleChoice Inc. in Verona, N.I. "It won't hurt Cisco or anyone else to not be in this market for some time because there are virtually no buyers out there."(3



# Truce makes Alpha's future uncertain

By Jaikumar Vijayan

MORE QUESTIONS than full blown concerns followed last week's expected changing of the guard on stewardship of Digital ipment Corp.'s much-tout ed Alpha chip technology

Digital's settlement of an exchange of suits over chip pat cots with Intel Corp. last week means all future manufacturi responsibility of the Alpha chip now rests with Intel (see FAQ). Digital's Alpha chip garr

a mere o.r% of the total \$16.3 billion in semiconductor renue last year, said Semico Research Co. in Scottedale. Ariz. For the moment at least, us ers and analysts seem to be b ing Digital's line that the Alpha road map won't be impacted in the short term

But anxiety continued to swirl about the company's long-term plans for the Alpha platform, its dual-architecture strategy and its continued commitment to the OpenVMS platform. The part that leaves every body wondering is what this is going to mean for the long-term are of OpenVMS," said to

seph Pollizzi, president of the Digital Equipment Computer If Digital decides to quickly signate its Unix and NT cusers to the joint Hewle Packard Co./Intel IA-64 archicture - as a lot of users and analysts expect it will OpenVMS customers will be left

in the lurch, Pollizza said. As part of the announcers last week, Digital said it will port ping with HP. But Digital reDigital, Intel make up

that does this mean for Alpha source? robably little in the near term, But the satisform after a move away from Alpha to the IA-64; a filters remain about the future of One-WH main about the t

for OpenVMS, which is currently supported only on Alpha.

"This is something that needs to be immediately clarified by Digital's Alpha chip manufac-turing operations for \$700 million. Digital will continue to own the design and develop Digital" to reassure users tha rir investments in OpenVMS ment rights to Alpha, which inwill be safe, Pollizzi said. tel will manufacture for Digital. Digital Vice President John

He said Digital will continue with its plans of offering Alpha servers at the high end and Win-tel servers for a broader market.

Rando claimed the arrangement that we will be able to move to a ith Intel will in fact extend more open architecture quickly Alpha's life. Intel's mass-volnow," said Fernando Yson, sysume manufacturing capabilities mean Dirital will now be able to tems manager of Alpha syste át Unicare in m out new versions of its Beach, Calif. Alpha chip faster and more eco-nomically than before, Rando said. The next clup is due early

larly, the porting of Dig tal Unix to IA-64 means Dig users will get full-blown 64-bit application support on IA-64 ar-chitectures when it begins to ship in late 1998. You said. I Senior editor April Jacobs contributed to this story

Intel's involvement "m

Intel last week agreed to buy

EXPANDING E-MAIL MANAGEMENT > Named's 20 conference became part of fully's It sorts. It staple:

It's fast.

It's from Xerox.

It's not what you think it is.



# It's a new benchmark in Network Printing.

Introducing the Xerox DocuPrint N32. With its 32 ppm speed, copier-like options, and \$2900 starting price, there's nothing like it. In modular design less you build your own solutions. And along with scanness concernity's, you get our new WorkSet technology has provides true multiple document set printing and dramatically minimizes network truffic. We'd like is show you all the ways the DocuPrint N32 makes office printing simpler and fire more productive. Give us a cull at 1800-34-EEOX, ext. 2976. In Canada, 1400-385-EEOX, ext. 2976. Or visit www.screau.com/explainers.com.

Xerox Network Laser Printers. A different line of thinking.



# Start your engines Hear that revving sound in

## the distance?

That's the second round of electronic commune the flinty-syed, money-making ROI kind — firing up its engines at AlfordSignal.

The automotive aftermarket direction of this \$19,5 billion manufacturer later this menth will issued: a natique Who lite pace or exclusive story on page 651 aimed squarely at profitability. It will surve volumes of business customers, entertain and race fina and drawines random consumers with lares such as dovelendable orbitmen that diagnoses car treable.

These days, the most bullyhouse examples of more symmetry Web sites half from the computer industry



itself (Cisco, Dell and Hetacape come to mind) or the financial industry. An estimated SI billion to Sto billion in goods and services will be sold outline this year. But traditional, conserva-

the manufacturur — the heart and seel of supply-clain connunic; — have done little more than creates sur-hazing bracturus onlian. One survey noted that 80% of Fortune 500 companies have a Web presence. Yet execute poli pointed out that 78% of company Web sites weren't over created with revenue generation in mind.

The second reused of electronic commerce will change that stitude dramatically, as also such as AllieSigna's demonstrate how to make the Web a business venture rather than a cyberadventure.

Six models and Six million age, soon. Mighraphramocathring.com was just a lot of intriguing talk floots and "Mildelligan" Six disportaments. But SI model up playing the pirtual role in creating the six, benching any department in the company along the way. The automotive division is counting on the way. The automotive division is counting on deling business collect with many of the 2,000 casttenors, but it also intends to some millions of delature are year by divisioning the meant for private naturely.

electronic data interchange. So ladios and gentlemen, start your E-commer engines. The race is on.

Manufau plus

terret: meryfren\_johmon@cu.com



# Is it a crime to be successful?

Entros have celtum's column on the Federal Trade Commission investigation of Intel ["Federal Folly," CW, Sept. 29] couldn't be more dead-on!

Thank you for telling it like it us.

Thank you for telling it like it us. Intel chips come at a price — everyone known that, and people are willing to pay for it.

Does my beand preference mean that Intel should be punished, or Coke, Nike, Chervolet nr AT&T?
Why are the Department of Justice and the Federal Tirade Commission

wasting more tarpayer dollars and everyone's time? I like intel's products and support. And heck, I even like their commercials. So sue me. not

Tim Barrett
Louisville, Ky.
timberrett@rehabdesigne.com

Keeping up to date on skills will put an end to age bias AFFIR READING YOUR Article on Ajob (age) bias ["IS vets organize to beat job bias," CW Oct. 13]. I just shook my head in dis-

Supply and demand is the bottom line in the business world. So logically, if retired programmers bothered to learn the current in-demand skills, they would be in

Age bias, race bias, sex bias . . . lazybrain nonsense. It all boils down to having a skill that someone is willing to pay money for.

> Jerry Collins Indianapolis collingi@indy.net

Aura to Paul Gillin's column
Aon Sept. 29. It's about time
someone noticed how the not-so-

great businesses scream foul play
when someone else does somes. thing right

I cannot believe that, in this day,
it is a crime to be successful. Intel
is doing a lot of things right
is and the consumers prove it with
every lotel purchase. Those un-

and the consumers prove it with every Intel purchase. These unfounded lawsuits are a threat to those who would be great and an incentive to be mediocre. Brian Stork Consumer Credit Counting Sensite.

Sun right on track with Java

Most us the folks in the industry have already heard how

Newtry faste asteady nexts now Microsoft. Intel. Compaq and others would like to back Sun into the corner of eleasing control of the corner of eleasing control of the corner of the cor

I guess that their plea is purely for the good of the rest of us. How dumb do these people think we are?

Maybe Sun would agree to the suggestion when Microsoft gives

up control of Windows and Intel could share its CPU designs royalty-free — with every chip manufacturer in the world. John Zielinski

Lymrood, III. john.zielineki@inferes.com

#### A year 2000 octaway plan

So with Jan. 1, 2000, hits, should I be camping in the hills with my life savings. Social Security printest. TRV report and enough packaged food and bottled water to last me seeks? I've developed a strange type of paranois

from continually being bombarded with articles on the year 2000. If it is as serious as they say it can be, why basn't this reached a

can be, why hasn' national level to develop mandatory standards for businesses, including the government? I feel hacky to be

feel backy to be immercred in the IS world so that I can personally be aware of precautions and do my best to warn loved ones of some risks. But 90% of this country has no clue

about this issue.

I'd like to see Computerworld devote a special issue to year aooo practical tips and precautions, so that we can all be prepared and pass them along to our families.

Silon Russ

o our families. Ellen Run San Francisco ellen@sistrc.com

99% of the

clue about year

Computerworld velcomes comments from its readers. Latters shoulder asseed soo words and should be addressed to Maryfam johnson Excusive Editor, Computerworld, PD Ber 1977, 900 Olf Connectical Path, Framingham, Mass. cryon. Far number; (908) 97-987; Inamentetters@cscom. Please induste an address and phone totale an address and phone

#### Year 2000: Prevent the panic now Robert L. Scheier

she didn't know that her shop had re-

We take precautions

to get ready for year

cently signed software licenses that

expire in 2001, risking system crash

es if their clocks moved past that date.

ded" processors contained in everythi

from bank teller machines to LAN

routers to telephone switches. CIO

Arthus Gross at the Internal Revenue

Service recently warned that such "infra-

structure\* bugs could require as much

name you know and probably wear name you know any present, we seemed genuinely surprised at how im-portant that co-design experience was to

get people to know one another and gain

Another growing worry is the \*embed

2000 buas.

s it time to panic over the year 2000 software bug? work as those in the more visible appli No. But the drumbeat of doom is getting louder

and coming from more respectable people. It's time for leaders in government,

business and information technology to prevent panic by explaining the real but manageable risks and what they're doing The fear is real. When 150 members

of a year 2000 user group in Washing-ton were asked last month to rate year 2000-related system failures on a scale

nient) to 10 (social disaster), about a third described them as eight or higher. One project manager said he plans to stock six months' worth of provisions in case the

economy shuts down. None plan to fly on Dec. 31, 1999. What's got these people so scared? For one thing, the unforeseen problems that keep cropping up. One at-

Some experts say there's no need to sweat over year 2000. Page 69

tendee, for example, said she hoped to

Some equally knowledgeable observers claim the "infrastructure" problem is overblown, but not knowing may be cat-Some observers speculate that the No find a asst century year when the calenclear Regulatory Commission will shut down nuclear power plants if their owndar dates match those in 1997 and just turn her systems ahead to do testing. But

ers can't prove every chip and every line of code in those fiendishly complicated systems can tell the difference between 1900 and 2000. Anybody know how to

for floods. Do the same design and perform those tests in the next two years? Underlying all this is the realization of how dependent we've become on cor as we've wrung fat out of our economy. Automatic replen-

ment systems deliver part just in time; "knowledge workers" eliminate the need for middle manage slobal financial markets react instantly to

ine that just one major fi exchange stops, even for a day, because of two or three year 2000 bugs. And that, as CNN breathlessly reports that failure, just one regional automated

cause of a telephone problem. And that panicky customers in a neighboring state empty functioning ATMs of cash.

I besitate to trust these bogerma ries because they're so easy to spin and mpossible to debunk before the fact. But with all the code and all the chips in all the systems - and IS's poor track record in delivering complex systems -is it realistic to think to, see or 1,000 such glitches won't slip through the cracks in inconvenient and possibly dan-TOUS Ways?

nitations must prevent panic by explain-ing a) what could go wrong, b) what they're doing to prevent the worst problems and c) their contingency plans to keep necessities such as electricity, water and cash flowing if worse does come to

Our society doesn't collapse from floods, blizzards or hurricanes because we take reasonable precautions and have

emergency services reads. It's time to do the same for the year 2000 software bug. And it's time for IS - having helped create this mess - to help lead the way. Cl

Scheier is a senior editor in Computerworld's Managing section.

#### Webmasters show IS how to talk to users Michael Schrage

not-so-dirty, not-so-little secret about webmasters and IS is that they frequently dislike each other's intestines - in other words, they hate each other's guts. There are reasons for this: The webmaster culture is a lot easier and more freewheeling.

IS also resents how the 'net can so wrongfully overshadow the genuinely hard enterprise issues that must be munaged in this era of accelerated 'netcen-

That said, intranets can evoke important behaviors that 15 would do well to itor and emulate. As much by default as by design, savvy webmasters are creating infrastructures for interaction that traditional IS can't seem to master. A global apparel company 1 spoke with discovered that the real value of its intranet development came less from the data its Web sites carried than from the level of interdepartmental collaboration

Their story was hardly uni-Many people and organizations like the informal, bottom-up design sensibility the Web encour-ages. The Web appears to be a betthat designing and implementing the sites required. In other words, the peacess of building their intraweb proved more valuable than the site itself. Manter medium for pushing col-laborative prototyping than, say, R/3 or Oracle System 8. More im-portant, smart webmasters promote and manage the Web as a es at the company - whose brand

medium for collaborative prototypi and as a vehicle to assure that the right people - from finance to human resources to marketing — meet one another to design the right site(s).

Does this happen because 29-year-old

webmasters are politically smarter and savvier than their IS counterparts? Ab-solutely not! What we have here is a classic case of multimedia McLuhanism — that is, the technology shapes the way people interact as much as people shape the technology. Precisely because the Web requires a lower

level of expertise to make functional than, say, Unicenter or nsight into one another's priorities.

Interestingly and sadly, company staffers contrasted this experience .with utterly no prompting from mel -Notes, it invites a higher degree of interwhich IS played traffic cop rather than action - for better

> The Web appears to be a better medium for collab orative prototyping than sav. R/3 or Oracle

Indeed, I have seen companies fool ishly delegate the task of intranet site building to departments and functions. Each department builds its own "page" and then counts on the webmaster to link them all together. But those case seem to be the exception rather than the rule. Most often, enterprises are using the Web as an excuse or as a reason to get together to create a multimedia, mul tidata resource for both the internal or tion and the outside world. The lesson for IS is that the Web is

creating new levels of participation, co-design and collaboration in the tion of enterprise computing. Equally important, the Web is raisene expectations for greater interaction and collaboration in IS, IS can respect this new reality and build upon it or it can moun about how man-agers "just don't understand" how "real enterprise computing" is so dif-ferent from the Web. Then again complaining seems to be an 15 cure competence, Cl

Schrage is a research associate at the MIT Media Lab and author of No More Teams! His Internet address in schrage() media mit edu.

RY WEDNESD



#### ACCOMMODATE HIM.

If a data mining query discovers that between 5 and 8pm men bow dispers and beer. It's with this kind of valuable — and sometimes odd — information mined from company databases that Tandem to helping people in retail, banking, telecommunications and insurance uncover business opportunities, and coupled with our-reputation in handling 50% of the world's stock minascrions, 86% of all Confidence of the control of the control

Every second, every transaction, every customer counts.







**Partners** 

The Microsoft, Windows, PC

# Windows NT Workstation:





Why pre-installed Microsoft Windows NT Workstation

If there's one thing to be learned from the explosive growth in the number of small businesses, it's that size and success aren't necessarily related. Given the right tools, a small business can perform just like a big business. The bottom line? You don't have to be big to do big things.

Keeping that in mind, Microsoft—with our PC partners Dell, Digital, IBM, and others—has created a business computing solution that can change the way businesses of all sizes work and succeed. It's Windows NT ore-installed on new PCs.

We can giues your next question: "Isn't Windows NT just for enterprises?" The fact is, no it's not. We believe Windows NT is the world's most powerful business operating system. And small businesses everywhere are using this power on new PCs with big results. Why did they choose Windows NT Workstation? Here's what they fold us.

# "Windows NT allows my small company to do the work of a large company."

-Arabian, Hypnotic Fig.

Windows NT Workstation is dependable. "Small businesses are no different from beg corporater speed;" says Afon Loe of OSI. "Our computers repect," says Afon Loe of OSI. "Our computers need to run just as dependably. That's why we like windows NT. it's buildeproof." Greg littlengroof. "Greg littlengroof." Greg littlengroof. "Greg littlengroof." Greg littlengroof. "Greg littlengroof." Greg littlengroof. "Greg littlengroof." Greg littlengroof. Greg

Windows XT beeps, your data safe and secure even under the vegtredippest conditions. Dere coderially beep varil slop in a nat? O' find out that someone who suidout have accessed your fise off? We here, too. That's show why does NT incubate religiated security. This way more than one person can use the same personal compute, but each hidde access only to he of the ridductiff files. They reasons we had window. AT per installed on our new FOs sets its security and scalability," says which NT per installed on our new FOs sets its security and scalability. Sets you for Sun Milling Milling and the set of the set of the set of the sets of the sets of the NT per installed on our new FOs sets its security and scalability. Set you for Sets of the s

Windows NT is not complicated. Windows NT features the same familiar user interface that is in the Windows 95 operating system. The Windows NT user interface makes everything leasy, "says Loring O'Touing of Digirnata, "We just finished a project that, just a few years ago, we couldn't have even attempted. But now that we have a Digital Personal Workstation running. Windows NT, we can take on big projects and really deliver." Iain Denson of Pilispury Madison Surro LTL agrees, having recently imgrated the firm of Dell OppPiex PC and Windows NT environment. "It hasn't been hard at all to learn Windows NT—and we've got Popple here who, the hours before and got their system, du'nt even know what a mouse was. A little bit of training, and they're up and running." That So we asy Windows NT is."

Wild one of the multiple tasks at once of the multiple tasks at once? Windows NT les multiple tasks at once? Windows NT preempting week the multiple tasks at once? Windows NT preempting the multiple tasks at once? Windows NT preempting the multiple tasks at once ? Windows NT preempting the multiple tasks at once ? Windows NT task switching is, bamil it's mimediate, says the ... Windows NT task switching is, bamil it's mimediate, says to see ... Windows NT at task switching is, bamil it's mimediate, says to see ... Windows NT at trust expense to make the seed to see ... Windows NT at trust expense for each to task.

Windows VT turns you into a brittlant manager of files, folders, applications—and time. Hat filing? That's oke, Windows VT presents a view of information that makes browing and managing files, drives, and network connections easy—and your time even more productive. "We're able to get more work done in less time; we know the status of everything. And with our Digital Personal Workstation, the 3-D work really screams," says Arabian, nover of Hyprotice Ft.

# Yes! Windows NT Workstation is right for businesses of all sizes.

Windows NT saves big bucks. Industry analysis report that running Windows NT costs a fot less than running Windows 3.1.4 And don't forget the time saved by not calling technical subport and how much more work your firm can accomplishand bill-due to increased productivity. "When you consider the return on investment," adds Loo, "You've really got to ask

yourself, can inflored not to go with Windows NTP<sup>2</sup>. Windows NTB it believes by 1 more year businesses, Windows NTB it believes a 23-bit weefib. Besides increased security, which were not a 22-bit operating system the Windows NTB windows not a 22-bit operating system the Windows NTB memory. A protein points out, "We did the research, and it was clear to us that 32-bit was the only way to go. The was a strategie colsion—our goal was to buy on the forward operating of the protein of the 24-bit of their research test of the protein of the 24-bit of their research test of the protein of the 24-bit of their research test of their re

Windows RT has a way of heightig businesses of all store accomplish one important tasks success. It's funny, "summarizes Arabian." A lot of people think Windows RT is just for large businesses, but I think it's actually the other way around. Windows RT is the way in. Being successful has title to do with size and everything to do with how quickly you mow. And I can tell you this much: With Windows RT, we're moving pretty fast."

#### From our partners

Delth built for your business. At Delt, we talk with thousands of business customers overy day, and this is what we've heard. You want a powerful machine that what become obsolete within a year (or even five). You want it configured for your specific needs. And you want it at a fair price. How do we respond to these requests? With one word, Oxylfies.

D&LL'

The CusPiler system, like all of our other offenings, and sworthing we pail from soloci. We boild on the new configuration by our will, beloaded with the desthmen you seen, from the ground sur. Toolse, more businesses are requesting floshiffer computers pre-tioned with Mindows fit Vinovitation than ever belone, and we think that smart. Windows fit is a powerfully robust system, and we should know—our waldation loss of through its possesses every (by Jib. our presentably with Mindows fit of grew will be provided in the control of the control

Digital: approaching warp speed. At Digital, we see a tremendous opportunity for businesses of all states to sharpen their competitive edge by moving to powerful Windows NT-based workstations. But if or the demanding design professional, our Digital Personal Workstations can drive down costs, improve productivity, and help you harmes the laster, most innovative 22-bt applications, and the results are impressive.

digital

Digital Personal Workstations unleash the true power of Windows NT Workstation to help users visualize their creations faster and more realistically, it the same time, they offer access to state-of-the-art office and personal productivity tools. It all adds up to faster time to market. Even better, the combination of Digital Personal Workstations

and Windows NT offers a total cost of ownership that is  $\overline{39}$  percent lower than that of UNIX workstations, according to a study conducted by Debtie and Touche. See what we mean? Impressive results. And exactly what you would expect from a powerful aliance between two market leaders: Digital and Microsoft.

IRM: thinks senart. At IRM, we're dedicated to helping our customers get the most out of their computing solutions, and our ThinkPads are a perfect example. Working closely with Microsoft, we designed all our ThinkPads to take on the very real challenge of running Windows NT Workstation on a notebook computer—and we're happy to report that the long hours have resulted in a smashing suppose.

IBM.

Today, while all our ThinkPads run Windows NT, the IBM ThinkPad 770 provides what we believe is the industry's premier Windows NT Workstation Implementation in a mobile platform. Every ThinkPad 770 features, among other things, full power management, Utrabay Plug and

For more information on Microsoft's partnership approach to Windows NT business computing, visit: www.microsoft.com /windows/newtech/

For information on Microsoft Smell Business computing, visit: www.microsoft.com /smallbiz/

Play, and hot plug PC Card support. Bottom line? Our customers can take advantage of Windows NT security, scalability, and reliability at 35,000 feet as easily as they can on their deastly system back at the office. Flesblith; through partnership. At IBM and Microsoft, it's what we think small businesses need to succeed.

www.microsoft.com/windows/newtech/ Microsoft

technology base Russians were always brilliant theoretical engineers but lacked the resources to build expertise in applied technologies. And that's what is important in the economy of the West.

Granted, there are a lot of hard-working Russians in IT. But the fact that these newcomers have had to write efficient code means,nothing in an environmeot dominated by Microsoft products

I believe this industry should put these people through a basic training program to teach them advanced software engineering We have to implement solid long-term training programs that turn out thoughtful "knowledge workers' to solve the labor problems. Quick fixes won't do. Marc C. Di Giuseppe Ibica MV

MY 27-YEAR-OLD SOR IS SP

niversary date of receiving his

B.S. degree in computer science, and he is still without any job

prospects in the field. This

that your weekly paper contin

ues to report on is lost on me It

seems that the employers of IS

personnel will not look beyond

rage of skilled personnel

roaching the fourth an-



SAN YOUR article 'The Rusnever had such an opports sums are coming!" and I totally agree with it. I immigrated to the U.S. six years ago, and for the past several years I have worked in L.A. as an independent consultant on client/server systems. I am very grateful that this country gave me the

in Russia, but I got good, solid education and some experience I hope that the U.S. and Rose sia will have much more in

> Alexander Polishchuk Los Angeles

Phrases such as 'World Wide Wait' make reader's day

Surfer\* column (CW, Oct. 6] was much appreciated. I loved the phrases "World Wide Wait" and "exquisite irony." Maybe Paul would be interested in compiling a list of the Top 10 Web Sites to Die For -

which indicates how long it

OR PAUL GILLIN'S "Cavent takes their pages to load. Anyway, thanks for saying some-

thing no one has said. I was beginning to think I was just a Type A person drinking entirely too much coffee for my own

better products and services to

of dollars of investments in IT

image of the hapless geek is left behind), more talent will be ep-

ticed into the field. It may never

be enough to meet demand.

though, because the bottom line

is, this stuff is "rocket science."

and the average [or produced by

our public school systems can not handle it.

Principal systems engineer

Computer Date Systems, Inc.

Ron Hodges

When salaries go up (and the

are revenue producing.

mers whether their billions

Linda Gon Wildomar, Calif.

common through such collabo ration. Thank you very much for posser serticide

IS hirers should look past disabilities to fill positions physical tather than a mer sability. One you can probably see and know what adjustments have to be made in the workplace. The other you can't and are unwilling or unable to find out if there really is a diamond

portunity to come here and

be all I can be. I would have

under the dirt. Don Ctaladaines Allestown, Po rateinleitner@enter net

the possibilities, only the apparent lack of meeting "standard Indianapolis offers a lot criteria" for meeting the objec-As a secautrea for a rapidly expanding IT service tives of a lob The fact that my son held

provider, I pay close watch to down various temp jobs in another field means nothing. The your IT Careers Regional Scope fact that he was able to complete pages. I would suggest that you consider including Indianapolis. his degree without any aggis tance from any support depart-It is a city with the secondment oo campus means noth largest number of insurance ing. But the fact that he 'acts company headquarters and the rent" and is unable to care home of the largest mail-order on a social conventation with an cataloging firm, the largest CD interviewer means everything. distribution center, the largest

Unfortunately, the Americans student loan firm and two major with Disabilities Act does little pharmaceutical companies. or nothing for the person who has a "mental" problem. Human nature is such that one is more readily willing to accept a

# Will the real revenue producers please stand up?

WAS ASTOUNDED by Michael Schrage's column I'Rocketing IS salaries: The party's over CW, Oct. 61. He misses a key point that totally undermines his entire argument: that tech nology provides competitive ad

It was particularly ludicro to talk of salespeople as "real" nue producers. Ask Michael Dell if the guys who built Dell Computer's online Web-based computer ordering system, which is doing a million dollars per day in business, are real rev

. Jessica Shevitz enue producers. Ask the banks Galaxy Systems, Inc. insurance companies, manufac rers and, yes, even IT cons

#### Users agree with Borts' contact a Well to troogus

MANES FOR giving Andrew Borts the opportunity to say what most of us AS/400 users know ("to defense of the AS/400." CW. Sept. 29|. We have had a great experience with our AS/400 and will be upgrading to a new E series early next year. Those information technology snobs who have never worked with or programmed on an AS/400 don't know what a low-cost workhome it is. The ondrawback to being an AS/400 RPG programmer is explaining to all of the uninitiated what the heck it is. Terry Rountree

Senior programmer/analyst Business Archives Houston

A RUSINESS software devel-oper working mainly on the AS/400, I am pleased to see Andrew Borts' positive (if feisty) commentary on the ma-

The AS/400 iso't cool, but then, neither is business software. The companies I work with use the AS/400 along with Windows NT Server, leveraging the abilities of both. NT is great for many things, but it doe come close to the AS/400 for processing business data.

Steve Page Indianapolis screen@indy.net

#### Reader takes issue with claims by Strassmann

THERE HE goes again. Onc. claims that computers reduce productivity [\*Computers have yet to make compenies more productive." CW, Oct. 15]. This time, his claim is based on th fact that Sales, General and Administrative expenses increased as a percent of Costs of Goods from 1987 through 1993. Suppose that using computers has made my organization more efficient in terms of the purchase of raw materials (e.g. via reducing waste), labor (reducing reworks, etc. Then I can sell mon goods while reducing the cost of

Why not consider the prof itability of U.S. corporations as a measure? Profitability ornerally increased over the same period. So perhaps computers have improved productivity after all. Strassmann's logic seems to imply that managers of most U.S. corporations are idiots: Otherwise, why would they waste money on computers? I find that conclusion hard to

Perhaps because the organiza tions for which he was chief in tion officer (Xerox and the U.S. Denartment of Defensel had difficulty using computers to improve productivity. Strass mann feels that all organiza tions have this problem.

Ed Kimbol Ann Arbor, Mich ed\_kimball@notes.puccom





Reader takes issue with

THERE HE goes again. Once more, Paul Strassmann

claims that computers reduce

productivity ["Computers have

yet to make companies more

productive." CW. Oct. 1sl. Thus

time, his claim is based on the

fact that Sales, General and Ad-

ministrative expenses increased

as a percent of Costs of Goods

from 1987 through 1994, Sup-

pose that using computers has

made my occanization more ef-

ficient in terms of the purchase

of raw materials (e.g. sta reduc

ing wastej, labor (reducing re-

work) etc. Then I can cell meier

goods while reducing the cost of

Why not consider the prof-

stability of U.S. corporations

as a measure? Profitability gen-

erally increased over the same

period. So perhaps computers

have improved productivity after

all. Strassmann's logic seems to

imply that managers of most

U.S. corporations are iduote

Otherwise, who would they

waste money on computers? I

find that conclusion hard to

Perhaps because the organiza

none for which he was third in-

claims by Strassmann

# **U.S.**, Russia working together

ETTERS

COMPUTER WORLD'S article on Russian programmers | The Russians are coming!" CW. Oct. 13] reads as though human resources managers have found a new those to solve a short-term labor problem Remember, education in the old Soviet Union was state-sponsored and mostly free. These gays learned how to do it for their country's specific

technology base Russians were always bedlant theoretical engineers but lacked the resources to build expertise in applied technologies. And that's what is important in the economy of the West

Granted, there are a lot of hard-working Russians in IT But the fact that these newcom ers have had to write efficient code means nothing in an environment dominated by Microsuft products.

I believe this industry should put these people through a basic training program to teach them advanced software engineering We have to implement solid, long-term training programs that turn out thoughtful "knowl edge workers" to solve the labor probleme Osnek fixes won't do Man C Dr Courses Utica, N.Y.



never had such an opportunity in Russia, but I got good, solid education and some experience J hope that the U.S. and Rus-

sia will have much more in common through such collaboration. Thank you very much for your article Alcounder Polishchuk

Los Asgeles

SHOR PAUL GILLIN'S "Cavent Esurfer column |CW, Oct. 6) was much appreciated. I loved the phrases 'World Wide Wait" and "exquesite irony Maybe Paul would be interested in committee a list of the Ton to With Sites to Day For

which indicates how long it

WAS ASTOUNDED by Michael Schräge's column ("Rocketing IS salaries: The party's over CW. Oct. 6h He misses a key point that totally, undermines his entire argument, that lechnology provides competitive ad-

It was particularly ludicrous to talk of salespeople as "real" revenue producers. Ask Muchael Dell of the guys who built Dell Computer's online Web-based computer ordering system. which is doing a million dollars per day in business, are real rev

Ron Hodge enue producers. Ask the banks. unsurance companies, manufacturers and, yes, even IT consulting companies that leverage in-

Users agree with Borts' support of IBM's AS/400

MANES FOR STYING Andrew Borts the opportunity to say what most of us AS/400 users knop ("In defense of the AS/400." CW. Sept. 29] We have had a great expe our AS/400 and will be uperading to a new E series early next year Those information technol ogy snobs who have never worked with or programmed on an AS/400 don't know what a low-cost workhorse it is. The only drawback to being an AS/400 RPG programmer is explaining to all of the uninmused what the

A S A BUSINESS software devel-oper working mumbs on the AS/400. I am pleased to see Andrew Borts' positive of feisty) commentary on the ma-

The AS/400 isn't cool but then, neither is business softwate. The companies I work with use the AS/400 along with

the abilities of both. NT is great for many things, but it doesn't come close to the AS/400 for

Steve Page s marriandonet

Wildeman, Calif

formation officer (Xens) and the U.S. Department of Determent bad difficults using computers to improve productivity. Strassmann feels that all organizations have this problem. Ed Kombal

od brobail@nates precome

Ann Arbor Muh



READ YOUR article "The Rus ians are coming!" and I total ly agree with it I immigrated to the U.S. six years ago, and for the past uneral years I have worked in L.A. as an indepen-

dent consultant on client/server systems I am very grateful that this country gave me the opportunity to come here and be all I can be. I would have

physical rather than a mental

#### IS hirers should look past disabilities to fill positions

M1 27 TEAR OLD SOR IS AD crosching the fourth an esary date of receiving his B.S. degree in computer science and he is still without am job prospects in the field. This shortage of skilled personnel that your weekly paper continseems that the employers of 15 personnel will not look beyond the possibilities, only the apparent lack of meeting "standard erneria" for meeting the objectives of a job.

The fact that my son held . down various temp jobs in another field means nothing. The fact that he was able to complete his degree without any assistance from any support departiné But the fact that he facts different" and is unable to carry on a social conversation with an interpresent means everything. Unfortunitely, the Americans

with Disabilities Act does little or nothing for the person who has a "mental" problem. Human nature is such that one is more readily willing to accept a

disability. One you can probably see and know what adjustments have to be made in the work place. The other you can't and are unwilling or unable to find out if there really is a dumond under the dart Ron Stemborner

Allestown, Pa rstanleitner@esternet

Indianapolis offers a lot

AS A RECRUTTER for a rapidly expanding IT service provider I pay close watch to your IT Careers Regional Scope pages I would suggest that you consider including Indianapolis It is a city with the second largest number of insurance company headquarters and the home of the largest mail-order catalogue firm the largest CD distribution center the largest student loan firm and two major

pharmaceutical commanues Galaxy Systems, Inc. Indianapolis

phente@galaxt.com

Terry Resented Sensor programmer/unalyst Basiness Architec

heck it is.

chine

Windows NT Server leveraging

processing husiness data

Phrases such as 'World Wide Wait' make reader's day

takes their pages to load. Answay, thanks for saving some thing no one has said, I was beginning to think I was just a Type A person dunking entirely too much coffee for my own

Will the real revenue producers please stand up?

formation technology to provide better products and services to customers whether their billions are revenue producing. When salanes go up and the

instee of the hapless neek is left bebindt, more talent will be enbe enough to meet demand though because the bottom line is, this stuff is "rocket science. and the average for produced by our public school systems cannot handle it.

> Principal systems estimate Computer Data Systems, Inc. ron\_hodges\_at\_cdu@



HE MONITORS THAT ARE BEST FOR CHRISTIAN'S NEEDS can oho speak to yours. Introducing the NEC MultiSync\* performance-driven Emerprise and value-oriented Advanced Series monitors. They feature superior, lifelike images. And the kind of flexibility that super high resolutions and refresh rates ensure To that end, OSM" (On-Screen Manager)

controls make image adjustments easy. Plus, select

MULTISTACE MONITORS Bankookk CET Tree 1290 x 1924 112MHz DotTho 0.75ee 1290 x 3024 115506 Dot Too 0.28mm

TISMH-Constitute dillera CRINCOAL 925mm mak 0 28eon dut

Enterprise monitors feature Chomiccien™ CRT technology, for unparalleled focus, contrast and intense color saturation

And, of course, the industry-leading NEC

warrancy includes 3 years parts, labor and CRT.

For more information call 1-800-NEC-INFO or risit www.nec.com.

# Corporate Strategies

Cose Studies + Trends + Outsourcing

# Briefs

theme in 14 inch

6% Have a full-fledged strategy in place to achieve year 2000 compliance

24% Have a detailed year 2000 plan in place Commercial Assessment State Company of Company Assessment Assessment State Company Com

+Online commerce

By Patrick Dryden DALLAS

nics. Per LIKE MANY COST Systems, Inc. first put some pages up on the World Wide eb as a sideline Then a "scary" reali-

Scare sparks site revamp

would become a major business conduit. So Pegasus informa tion systems managers had to resume the site to make content more manageable and to accommodate rising traffic and the need to deliver Web pages

Launched in 1994. TravelWeb (seasustravelueb.com) samply provided brochures that described hotel properties and some search capabilities. The service helped promote Pegasus' real business of handling transactions among 13 of the 15 largest hotel chains in the world and four global reservations sys-

TOO MANY PAGES But the site quickly grew to offer about 30,000 static pages. Updating information or adding features page by page became tedious, expensive and too slow, said Steve Reynolds, vice president of 1S at the Pegasus office

The situation worsened when Pegasus added a second Web server in December 1995 to let

customers book reservations online. Activity soared, and Pega-sus decided to make TravelWeb a strategic service for its hotel partners. But the fledgling site was not designed for such growth.

We would potentially have to double the 30,000-page static site when we brought in new hotels or booking agencies, then do it again for the next one." Reynolds said. Pegasus was outsourcing the page update process, and traffic volumes on the site were rising precipitous-

ly, he said. The services offered by Pega-sus constitute one of the Web's more fertile grounds for online

fortable buying hotel reserva-tions on the Internet than other products or services, ahead of software, online subscription and airline tickets, according to

a survey by Yankelovich Partners, Inc., a New York-based Forrester Research, Inc. in Cambridge, Mass. predicts the market for online botel bookings will leap from \$345 million

To integrate data. use tech, tact

The State of Colorado's David Usery: "There was some ske ticism that people could work together on this

By Craig Stedman they know, Just ask David OLD TECHNOLOGY habits die Usery is in charge of a \$1.3

ployers also must be careful

hard. And that can make life million project to link the infe tough for IS managers who mation systems of Colorado's have to pull together a diverse five state criminal justice agenmix of well-entrenched systems cies. Even with a legislative and for the users who are mandate behind him, getting fiercely loval to the machines

everyone to pull in the sar direction has required a careful blend of carrots and sticks.

"You can't mandate away turi wars, and you can only lead so

much by brute force. It's a deli-

cate balance," said Usery, the

chief information officer on the integration

Colorado gave up on trying to make the agencies convergé on a common platform. The project, which is due to go live in Janu ary after 18 months of develop-ment, uses Sybase, Inc.'s middieware to transparently may data among different systems. End users still will work within their familiar desktop inter-

faces, Usery said. planned, users will get seam

Privacy can be lost in background checks > Companies must weigh against need to know If companies don't do them, By Kim S. Nash but it also is often uncovered they may get some bad apples by routine pre-employment and even face lawsuits for negligent hiring [CW, Oct. 27]. But

EVER MISS a loan payment? Get into a legal scuffle with a col-Yet the technology hiring eague? Not only is such percrunch has created a catch-ax

not to trample applicants' prinal information not private. for employers bot to hire tal THE COST OF A BACKGROUND CHECK

Fees to obtain pieces of a job applicant's personal and professional history Address history, verification of Social Security number. 580 criminal check and driving history All the above, plus civil check, credit report and past employment verification Criminal check \$35

# State users' doubts met with political tact

CONTINUED FROM PAGE 43

access to information from other agencies that previously was available only in paper form, if at all- That would give police officers, judges, prosecutors and corrections officials more complete pictures of the suspects and criminals with whom they must contend

"Even the parole board hasn't had good information at their fingertips," said Dottie Wham, a Colorado state senator who chairs the legislative body's Judiciary Committee. They're still doing things on paper, and it's just very slow and inefficient." But the promise of improved

public safety didn't make the integration project an easy sell. It has taken nearly to years of happling and strong-arm tactics such as budgetary threats to get to the agencies to coopera Wham said. "People kind of hold on to information because it is power," she said.

Such squabbling also could sdanger corporate integration initiatives, said Lesley Kao, a ite and local government ana best at GaR. Inc. in Mountain View, Calif. But governmen agencies are especially wary of loting autonomy she said "There's a fear that other de-

guarantee each agency an equal say in decisions and to foster the impression "that you're go ing against the grain if you're against this." Then came the technology considerations

Usery gathered about 40 IS workers and end users for weekly meetings between last December and tune, and to-

partments might wreak havoc on their data," Kao said.

directors of the Colorado agen-

cies finally signed on. But even

then, Usery said, he and his

staffers had to work delicately to

It beloed that the executive

more than 17,000 hotel proper-

About 33,000 spend an average of six minutes Partners in the TravelWeb service can remotely modify ination themselves. And best of all, Reynolds said, the reponse time for a dynamically generated page is now just hunedths of a second slower than

ly generated pages



CONTINUED FROM PAGE 43 vacy rights in the process

gement-level people. Now it's all levels because there's liability at every level " said Paulette Hiebert, a vice president at Information Resources. a background checking firm in Torrance, Calif

State and federal hiring laws try to find a balance between employers' right to know and employees' right to privacy. For example, applicants must apwe, in writing, a request for financial records. But employers

out a signature Criminal checks, for example, are typically run in every town or county where a prospect says he has lived and in any other addresses revealed in credit re-

easier for judges to get data on the defendants they see

gether they hammered out a ain thick set of test and flowcharts that documented how things get done at the various agencies. That was used to develop business rules to govern the sharing of data. The users initially broug

"an element of cynicism" with them, and disagreements were common along the way, Usery ties through 42,000 dynamicalsaid. But the project team worked to create "the communal view that we could all buil ourselves out of hot water by

doing this," he said Colorado will use Eme Calif.-based Sybase's Enter-priseConnect middleware and SOI. Server 11 database to shut tle data among the agencies systems, which include an IBM AS/400, a Digital Equ

worker unless they are germane

to the job. A conviction for

breaking and entering, for ex-ample, would probably disquali-

fy someone for a job as an on-

site PC repair technician. On

ily preclude a programming job.

applicant's civil court history to

see if he has sued or been sued

by a previous employer. For example, Gateway 2000,

Inc. 18 months ago began to conduct detailed checks, which

has helped cut turnover by a half, a company officials said.

want to know what the law pre-

'We do get requests from

companies for information that

we know we're not allowed to

give out," such as medical his-

tories, said Lisa Haussard, man

ager of information systems at

ome would-be bos

vents them from knowing.

PRYING EYES

stealing a car wouldn't neces

But even with everyone nor on the same page, interagency trust goes only so far. All SQI database calls will go against a set of global stored procedures in SQL Server rather than directly from system to syst The agencies still aren't com fortable about giving direct SQL Corp. VAX, a Hewlett-Packard

access to outside users, Usery said O World Information Network

Co. HP 3000 and two Unix

Systems, Inc. in Beaverton, Ore.

Virtually all the state's crir

nal justice data will still be

stored in the various systems

The 40G-byte SQL Server data base will hold just the names

and case numbers of offenders,

and pointers will let end users

get at more detailed informa

on in the agency compute

servers from Sequent Compu

But by law, past criminal activities can't be held against a LLC in Tacoma, Wash Information on a worker's can be obtained, but only after the person is hired by the new employer. All the checkers in rviewed denied they would the other hand, a conviction for fidfill illegal requests, but they said a black market exists for personal information.

For example, some or ties want immigration data on foreign-born job seekers. Ask ing for the data isn't illegal, but it must be obtained through a district office of the U.S. Immi gration and Naturalization Ser vice or Social Security Adminis

"We can verify whether a number on a 'green card' is valid, and that's about it. And that has to be done through the

emigration office," she said. Yet some requesters, und the gun to get the goods fast, will hire black marketers who buy and sell immigration data, Hauguard said. "They want it the sneaky way.\*

# IS puts Web pages in order

CONTINUED FROM PAGE 43

et 33,000 cust

n' Web site

The solution is apparent now

Build a dynamic site that links

tral database for easy updates.

Pegasus management last rowed the convention of

TravelWeb from a static to a dy-

said they wanted an adaptable

site so that a hotel or agency

mon information quickly with a

low cost for creation and main-

For a site the size of Travel

tivity tools were scarce, of limit-

ed capabilities and slow, Remolds said.

The biggest problem was the

could put its interface on con

oe of six ou

this year to \$2.9 billion in 2001. lack of development exp "It was very scary to look six months to a year ahead,"

in Netscape Communicati Corp.'s LiveWire to rebuild the site on an Informix Software Inc. database. Remolds

"We had to try and try again to tune perfor mance. It was inefficreat, but the only ontion we had " he said To keep on schedule Pegasus' IS staff tried to stay away from unknown technologies elsewhere

ers spend an

Servers from one vendor, Sun Microsystems, Inc., are redundant for fault tolerance and scalable in processing, memory and storage for growth, said Trae Chan-

cellor, technical services director Three months after the dynamic version of TravelWeb

went online in March, traffic on the site exceeded Pegasus' capacity, forcing the company to hire a new Internet service provider. Pegasus shifted to San Francisco-based Genuity, Inc. Genuity's backbone provides igh speed, redundancy and

andwidth adaptability, Chancellor said. Adaptable band width is important at midday, he said, because "so many customers seem to book reservans during their lunch hour." Today, TravelWeb supports

"It used to be, in the old days they would only check out the

can get lots of information with-



If the answer is Cisco, you know your network service provider is supported by the products and sechnology that brought the internet to business. In fact, the internet as we know it today is built on Cisco equipment. Cisco Powered Network

service providers are equipped to in reliable, secure and innovative make your network work for you.

service. And you will know it's Whether it's latense acces, ATM, gowered by Cisco - the company frame relay or other data services, that makes the world's networks you will know your business is work for business.

getting the quality is can depend on.

Look for the new Cisco
Powered Netwock mark or yeas
our Web site at www.cisco.com to
find out more about the
participating network service
providers. Either way, you will
know your provider is committed
to giving your business the most
are reliable, secure and insurvate
service. And you will know it's
powered by Cinco- the company
that makes the world's networks
work for business.

CISCO SYSTEMS

e Network Works



# Loca elusive customer.



Where do today's leading-edge retailers discover new opportunities for growth? We guided REI, a well-known outdoor outlitter. to the IBM RS/6000. Using proven e-business solutions, we showed REI how an RS/6000 can use the power of the Internet to reach new customers. We easily integrated it into their existing systems. And, because RS/6000 solutions are remarkably scalable, REI needn't worry about turning away business. How can the RS/6000 supply your business with a powerful e-business tool? For the solution that fits your needs, drop by www.rs6000.ibm.com/solutions or call 1 800 IBM-2468.ext. FA056.

Differ TOTAL or register indexes or School for a real plant a statement of the log. At the male probabilistics or indexes or register indexes of the register origins, if the log.

Solutions for a small planet" IRW.

# The Internet

Electronic Commerce + The World Wide Web + letronets

# <u>iefs</u> Internet-based training passes audit

CREASINGLY WIRED



U.S. public schools By Nancy Dillon EFFFING MP-TO-DATE OR DEW

tax laws can be daunting for corporate tax professionals. But that crucial task may get a little easser next month with the debut of Coopers & Inheand [1P's Virtu-

al Campus World Wide Web site. An estimated a,000 sub-

scribers of Coopers & Lybrand's Tax News Network, plus 1.000 company staffers. will have access to the online training Web site that includes

Coopers & Lybrand Web site provides tax info

a two-hour course on new tax

The key to the online education market is anytime, any-where training," said Ellen Juhan, an analyst at International Data Corp. (IDC) in Framingham, Mass. IDC studies project the

EDUCATION online training industry will grow to \$28 billion per year worldwide by 2001, she said. The

Coopers & Lybrand site, which will debut next month, will have many of the features of a

يدونا يجليا واطلان وا me of agreeding with you



physical campus, including a registration building and class-rooms. Coopers & Lybrand supplied the site's content to Uni-versity OnLine Publishing, Inc. (UOL), a McLean, Va board on-'net based training, page 48

REVIEWS Office supply Web sites Office vendor Web expertise is out of stock

#### Users access SOL RETIVA data via intranet By Frank Haves

By Carol Sliwa

ONLY FOUR MONTHS after launching its first product. Netiva Software Corp. in Campbell, Calif., is shipping an updated version of its software for developing and deploying databases over intranets

Netrva 2.0, which shipped last week, now lets users gain access to information stored in SQL databases. The previous version, which shipped in June, allowed access only to a local,

Netiva database or to desktop data-County Santa Clara in California, the

software pack-

Netiva 2.0 new accesses SQL databases in age came at the right time. The collector's base from Sybase, Inc. office transferred 600,000 Because the county has a

SQL stata, page 48

IF BRINGING IN CUSTOMETS IS the key to a successful business. then office-supply superstores seem to have it nailed. Bright attractive stores have made names such as Office Depot, Staples and OfficeMax into household words, as throngs of customers turn to them for everything from paper clips to computer supplies.

But making the transition from an appealing brickand-mortar store to a cus tomer-friendly World Wide Web site has

have revolutionized the : once-sleepy stationery business Office Depot, Inc. in Delray Beach, Fla., is the buggest of the office superstores, but it doesn't have a public U.S. Web site at all. It does have a Mexican rite and has made a major commitment to a private extranet. How ever, Staples and OfficeMax have Web sites, but they have

turned out to be a challenge for these companies that

plicating the convenience of their stores on the Internet.

-By issuing bulletin on countermeasures . . .

# Response team targets spam epidemic

By Sharon Machlis IN ANOTHER SIGN that junk

headache, an organization known for helping to combat

property tax records from a

mainframe to a relational data-

electronic mail is becoming an , viruses and back attacks has is-Morrise strategies

Advisory Capability (CIAC) team at the U.S. Department of Energy received almost no complaints about un wanted messages. "Now, we're petting several a week " said team member William J. Orvis at Lawrence Livermore National Laboratory in Livermore, Calif. People are just starting to reach their level of frustration." stumbled when it comes to du In its recent bulletin on spam countermeasures, the Bessense team, page 48

working intranet, the tax office

sued its first advisory on spam

A year ago, the Computer In-

# 'net-based training

#### CONTINUED FROM PAGE 41 line training company UOL

dled the programming and will track and record enrollment, testing, grading and site "We've made this type of in-

formation available internally in the past, but until now, there wasn't a cost-effective and timely enough way to get it out to our clients," said Dennis Sheriff, tax relationship manager at Coopers & Lybrand in Parsippany, N.I. \*One of the nice things about the site is that we can keep adding more with little

Sheriff said he does expect several challenges with the site's deployment, however, "Will the dogs eat the dog food is the real question," he

said. He explained how he plans to monitor performance carefully because user acceptance is closely linked with download time and browser

#### POPULAR PLAN Those issues challenge any Web-based transitor application. but the popularity and accessi-

bility of the Internet are drawing more trainers online. Instead of using a third party to peogram publishable curricu-lum, the Stanford University Education Program for Gifted Youth (EPGY) is using software on its own servers to conduct live, interactive classes over the Web, EPGY, in Stanford, Calif. is one of the nation's top con tinuing education programs for

university-level students A APPLICATION The lava-based software is Sym-

posium from Lexington, Mass-based Centra Software, Inc. It combines multipoint audio into its online program so EPGY students around the country no longer need two telephone lines - one for a computer modern pool and one for a conference call bridge - to

call in to classes. Symposium also integrates existing computer-based train ing applications, live application sharing, chat rooms and instructor-led whiteboards and

oup Web browsing sessions.
The ability to follow the natural rhythms of education with real-time interaction is exciting to me," said Contrad Scott-Curtis, coordinator of English eduration at EPGY EPGY plans to use the program to teach English, math and physics to 60 students during the next

MCI Systemhouse, the educa tion and systems integration arm of Washington-based MCI Communications Com., user Symposium for sales staff training. Roger St. Germain, vice president of education services said he will use the software to

onent up to 50 salespeople at a time to MCI Systemhouse prod-"When we have a new software product to sell, we can gifted kindergarten through bring our agents from around

the world online, walk them through a demonstration as a group and accept questions and inmut" he said St. Germain added that an instructor-led program is more effective than sending out a demo CD-ROM with the hope that agents will adequately review and under-

stand the material Symposium 2.0 shipped last month and runs on Unix. Windows of or Windows NT It costs \$35,000 per server with up to 50 users. Similar instructor-led programs include

LearnLinc I-Net from Interac tive Learning International Corp. in Troy, N.Y., and Place-Ware's Auditorium from Place-Ware, Inc. in Mountain View,

\*Companies are learning that while there can be an initial high cost for online training tools, delivery of the tools over the Web is inexpensive," Julian said. Over the long term, online training saves time and ent." D

guage application programming

•Support of PGP/MIME for so-

# Response team targets spam flood

#### CONTINUED FROM PAGE 47 CIAC advised that scanning in-

formation in message headers, then filtering unwanted materi-al is the most effective antispum. strategy. For example, an admanistrator can block messages from mail programs that are popular with spain generators.

such as Floodgate, Extractor, MassE-Mail and others. System administrators also block mail from known spam-

mers. However, those methods run the risk of blocking mail from legitimate users as well as spammers, the CIAC cautioned And spammers typically use different accounts for every mailine to thwart individual blocking attempts, making filtering a less-than-perfect solution.

#### D IN AGREEMENT The Internet Mail Con

aureed. "Many of the technical solutions will alleviate some of the problems today but do not adapt well to smart, motivated, uncooperative, unsolicited bulk E-mail creators," the group con cluded in a report last month on spam. Sending requests to remove a

name from a bulk mailing list is pointless with most spe mers, Orvis said, although legitimate businesses will usually honor such requests. Fly-by night bulk E-mailers, though, will probably only use a remove message to verify that the address is valid and that the recip ient actually opened and looked

#### PAY THE PRICE Unless legislation is passed lum-

iting spam or requiring it to car ry identifying marks, there is little legal recourse for victims if the message isn't touting something illegal. Meanwhile, spam is becoming a price administrators and users must pay if they with to remain open to all cor respondence on the Internet. At Bell Atlantic Corp. in Marl

boro, Mass., tight security aimed at preventing malicious code from infiltrating the com ster network also effectively blocks spam, according to staff director Doug Savary. Any individual who wishes to send E-mail to the engineering staff at the company must first be put on an approved list. That can keep out legitimate business mail, Savary admitted, but security demands justify the policy, which gives the added enefit of screening out junk 'It's a price we are willing to pay," he said.

#### Nonexpert users get Pretty Good Privacy Cross-platform C and C++ lan-The PGPsdk tool kit is avail.

#### Tool kit adds security features to applications

Dy Richecca Swhee PRITTY GOOD PRIVACY, INC.

(PGP) last week introduced the PGPsdk tool kit, which was designed to let corporate developers and systems integrators who aren't cryptography experts add security features to applica-

Snapshout

Features include the followcryptographic strength of 128 bits.

FORMATION SECURITY MARKET

interface able for development on Windows 95 or Windows NT, cure communication among Macintosh, Sun Microsystems different electronic mail applica-Inc.'s Solaris a.s and Linux plat-"The ability to integrate with a certificate server Access to a wide selection of

royalty-free ciphering and hashing algorithms. Secure cryptographic routines fast performance in real-time applications, including

encryption, decryption, digital signature and verification PGPsdk is available now for \$895, plus additional charges depending upon the number of

Officials said the tool kit will also be available within a month on the company's World Wide Web site at nwupge. com.

Sykes writes for the IDG News Service's Boston hurray.

# SQL data over intranet

#### CONTINUED FROM PAGE 47 wanted to create a way for em-

ployees to access those records through a web-centric application. For years, staffers had been using cumbersome mic fiche reports.

#### NO EXPERTS NEEDED The Netiva software lets use:

who don't have in-depth knowledge of Java or Hypertext Markup Language create the inquiry screens that launch queries on the Sybase database. said James Rusnak, director of information systems for the

"You can basically produce applications in days or weeks that would normally take many weeks or months to do," he

The Santa Clara tax collector's office also uses the Netiva data base to store information ensered by clerks when they accer payments at the counter. In the past, days would go by before the files got posted to the sys-tem. Staffers now will have instant access to those records Netiva a.o consists of the following three pieces:

 A Designer for building in-tranet database applications.
 Ao application/database server that makes applications available to multiple users, process es application logic and stores

· A Java applet that runs in the web browser, allowing users to connect to the server then display or run the applications lo-

The Netiva software runs on ndows NT and Windows 95. A license for two concurrent nections to the server costs

# **Office** supply sites

CONTINUED FROM PAGE 47

That has left the door open for competitors, both large and small, who are carving out their own pieces of the office-supply market on the Web. But whether they will be able to du plicate the office superstores' success in cyberspace still depends on bringing in those cus-

STAPLES What would you expect on the Web from the second largest of feels like a fortress fice-supply chain? Electronic commerce? Up-to-the-minute sdvertising? At least for now, Staples, Inc. in Westboro,

Mass., has missed those oppor-The Staples site at www. steples.com looks good, but it isn't the place to go to buy office products. For that, the site will direct you to the pearest Stuples store, using maps generated by

MapQuest, Inc. ou can request a free printed catalog, contact customer service or browse through a very complete set of information for job seekers, including the schedule of Staples re ters on college campuses. But if you hope to buy a ream of paper or a box of staples online, you are out of buck here

You are also out of luck if you are using Netscape Communication Corp.'s Navigator and want to order a catalog. That





es Online is ori erter supplies then office supplies

form works only under Microsoft Corp.'s Internet Explorer. With Navigator 3 or 4. it shows up as raw Hypertext Markup Language code. That hardly inenires confidence

site. The home page welcomes nonregistered visitors, and though you are asked to sign the guest book, you can easily skip past it.



No online catalog OFFICEMAY

If confidence is lacking on the Staples site, OfficeMax, Inc. -at www.offcemax.com - comes up short on trust. The No. 3 office superstore is a nice place to

visit in person, but online it You can't enter the site without divulging your Zip code. If your corporate firewall blocks cookies, you can't get far into the site at all. And OfficeMax

really wants you to register before you even start browning the online catalog. In fairness, once you have been electronically frisked, you can easily search the OfficeMax catalog and make purchases. The home page lists several sale items, and navigating the site is

easy once you are through the gate. There is also corporate information on the Shaker. Heights, Ohio, company But if attracting customers is OfficeMax's goal, this isn't the way to do it. There are ways to build a secure shopping site

that aren't so hard on cus

The hardest thing about Boise Cascade Office Products Corp.'s site may be find ing it. The site's Web ad dress is 197. bcon.com that's pretty

about

neodocte com. But there is nothing obscure, 01 fortress like. the

Itasca, Ill.-based company's Web Scanner 5.0 costs \$4.995 for a Class C license.

bricks-and-morter office super-Searching for a particular product is quick, but you had tter know what you are looking for - there is no easy way to browse through general prod-

OFFICE SUPPLY WEB SITES HOW THEY STACK UP

uct categories. And comparison shopping isn't especially easy here; product listings include only list prices. along with a blurb saying "our customers always pay less." But Boise Cascade

makes it easy to find recycled products, or those from minority and women-owned businesses. That feature alone can make it worth the trip if your business requires those characteristics in

Ironically, the Web sites that offer a look and feel most like

the office products it buys These sites are bright, color-SUPPLIES ONLINE AND ful and easy to brosse. They are stuffed with products, offer

stores are Internet-only start ups such as Supplies Online at www.suppliesonline.com and CyberSupply, which is at new

have decided what to buy. Supplies Online in Dallas is more oriented to computer supplies - the search engin rned up no staples or parter

It includes help on navigating the site and lets you create a per sonal shopping list and store it on the site.

CyberSupply North Bergen, N.J., has exceptionally good facilities for searching or browsing, and it stocks regular office products along with computer supplies. It includes reebuilt lists of popular

And in conv and friendliness, both are a large step shead of the

Web sites from the office superstore giants. If the big boys aren't careful, that stationery-store revolution could happen all over again.

overnight delivery and don't ask for any information before you NEW PRODUCTS

fates .....

INTERNET SECURITY SYSTEMS, INC. has announced Internet Scanner c.o. a network secu-

rity audit tool. According to the Atlanta company, the tool uses a data base of hacker methods and ulities to detect security holes such as miscoinfigurations and weak p Graphical reports of network probes include the corrective actions required to achieve

maximum security It can scan Unix, Windo NT and Windows 95 ma chines as well as the firewalls, World Wide Web serve routers and applications

rnet Security Syste

LLANE COPP, has announced HomeSite t.o. a WYSIWYG tool for Hypertext Markup

Language World Wide Web site development. According to the Cambridge, Mass., company, the new version has cur tool bars, s floating window that displays thumb bnails of all images in a directory and a ject link-verification feare. The editor can access renote file transfer peotocol

evers for uploading and waloading files. And it has a Channel Definition Format and for use with Micros orp 's Internet Explorer 4.0

HomeSite 3 o costs \$79

AGAYE SOFTMARE DESIGN, INC. has announced SQml Web database application develop-According to the Dallas ompany, the tool helps inte-

grate database information such as electronic catalogs and price lists with Web sites or corporate intranets, It can enerate Hypertext Markup nguage documents on the fly with information from existing SQL databases and can omatically update Web sites as the connected data ses are undated. The five-user NT server ediion costs \$495. The five-user

Unix server edition is \$995. re Software Design





Windows NT Site Server
Exchange SQL
Proxy
yostens Management
SMA
Microsoft

# You are now the master of your own http://universe

Introducing Microsoft' Site Server. It's about a new level of combol. For time, everything you need to may pure applicational tribunce or intermet all in one samet box, from creation to deployment' to maintenance; from side commercen' to cross-platform analysis and tracking. The concept is We iffective management. It moses that while the interset or interset any and of its own, some in factor of it. It's confert, in factor, it's indeed, it's indeed interset any

www.microsoft.com/backoffice/siteserver/info

Where do you want to go today? Microsof

# The Enterprise Network

LANS + WARS + Network Mesospement

# $\operatorname{Briefs}$ Novell tool bridges services gap



#### By Laura Di Dio .

SECURE, PAST and nearly 100%

guaranteed Internet access. That's the enthusiastic decription of some early users of Novell, Inc.'s new Border-Manager suite of directory-based Interiset/intranet services. BorderManager is one of a new class of software packages

designed to bridge the charm between a business's corporate internet and the Internet Like Microsoft Corp.'s Proxy

Server and Netscape Communications Corp.'s Navigator, Novell's BorderManager sits at the "border" of a company's intrapet and Interpet.

There, it acts as a secure centralized gateway that accelerates World Wide Web access for Instead of requiring separate

| Lower hardware costs for Web servers connections to a particular Web site each time individual users

request it, the Microsoft and Novell offerings use their respective proxy engines to cache the most frequently accessed

# BORGER PATROL

- a Access to Internet g Remote access to-corporate intranets
- tradized management of security on intranets
- Elinks geographically dispursed site: p Reduced costs from using the internet for voice.

The result is savings in time. money and precious bands product that gives us fast, secure Internet access. It lets me customize user access to the

\*BorderManager is a kick-butt Novell, page 52

"It's extremely important to

#### TELECOM SERVICES Long distance

#### makes bosiness user fonder

By Matt Hambles

DO BUSINESS USERS like their lo cal telephone and data carriers

In interviews with Compu world, network managers critcized their local carriers and were quick to describe service and reliability problems. They want an alternative. But local carriers claim that custon are generally pleased with ther service. They cite their own cus.

tomer surveys to back up their ims — without revealing per-Long-distance, page 54

#### GOING THE DISTANCE Which do you prefer: long

to local carriers for one-stop shopping with all types of





# 3Com, Tivoli link management tools

By Patrick Dryden

3com corp. and Tivoli Systems. lpc. last week announced plans to pool their skills in managing networks and assuring prompt delivery of critical business

Early next year, 3Com will bundle the agent software for the Tivoli Management Environment (TME 10) enterprise manager with the nearly a million network interface cards it ships each month. By mid-1998. sCom will offer a remote software update tool based on

Those stens can eliminate some costly trips by support technicians to networked PCs to install management agents and

Tivoli's software.

we management agents bun-ed at the card level," said Paul Edmunds, a senior network analyst at Duke Energy Co. in Charlotte, N.C. Embedding software in the card can free some PC resources, he said. And deplaying TME to to servers and 3Com, page 52

# Cisco CEO:

trize John Chambers, president and CEO of Cisco Systems, Inc., the largest internetworking vendor, with a market cap of \$57 hillion He mys paranoia about the competition and the challenge of keep ing up with users whose needs are rapidly changing keep him up at night. But he doesn't lose sleep figuring out which emerging technol-ogy to support. He prefers to use his \$800 million research and delepment budget to support all

## John Chambers Worry-free is not the way to char- cide which is best. .

Chambers recently shared his views of the industry and discussed challenges facing the San Jose, Calif., networking giant with Computerworld Senior Editor Rob Wallace and Francisco Editor Maryfran Johnson.

CW: What's the most imp omorging trend you see? CHAMBERS: The most impo tant trend is that data, voice and

video are coming together. We Clace CEO, page 52

# Novell tool spans service gap

Web based on individual user IDs," said Phil Easter, a technology strategist at Greybound Lines, Inc. in Dallas

Although Microsoft's Proxy

is \$2.495 for five clients, compared with a price of \$1,000 for Microsoft's Proxy Server (not including Windows NT 4.0).

The integration with [Novell

Directory Services (NDS)]

allowed us to get all four Bor-

tor, quality of service.

3Com's leadership

in network adapter cards and distrib-

tion services

need for support.

pursue the same

course with other

HOT ENOUGH

"Proxy Server is a good product. said for Meadors, information technology manager at the Metropolitan School District of Pike Township in Indianapolis. which supports 9,000 users Analyst Bob Sakakeeny at

ming in four hours, which is awesome. It has more integraled services than competing products," Meadors said. Users also said BorderManager lets them leverage their exist ing investment in Internet access pear and saves their businesses thousands of dollars per month on recurring leased-line

Aberdeen Group, Inc. in Boston

said BorderManager is just

derManager servers up and run-

the type of product Novell ¿Com for its 16,000-user network, and managers there need to guarantee quality of service for videoconferencing and multimedia training applications.

need a standard way to provide the same policy-based management to all devices." Officials at 3Com in Santa

sault. BorderMan

ager, with its inte-

grated suite of

services and close

ner to NDS could

be a big step in

that direction."

"It's allowed us

to keep our origi-

nal TI line, which

we were obsoming

to replace with a

fatter to M bit/sec.

Meadors

Napier, a network engineer st

the site in Oakridge, Tenn, "We

Sakakeeny said.

nologies in the areas of traffic Clara, Calif., and Tivoli in prioritization and network per Austin, Texas, focused on their formance management. partnership but admitted they

ing so rapidly. My second one is

company to buy (Crescendo

Communications Corp.1

needs. "Novell must jump-start month on our existing Ti momentum in the face of costs " Windows NT's conti

Monty Sharma, a solutions designer at Maritime Telephone &

Trust Co. in Halifax, Nova Scotia, in another fan of the Novell product He said Border Manager provides his shop with an integrated way to protect corporate information and resources while rma is a fan ol providing Internet

said. "And the Proxy Cache fea-"This is exactly the type of fure cuts down on bandwidth inctionality we need for Interusage, saving us \$2,000 per net access,\* Sharma said. Cl will forge similar collaboration efforts with other vendors

3Com is a charter member of

Tivoli's Open Network Environ-

ment program to integrate tech-

#### but it wasn't an option for us."

Server has been shipping for a year, users at four commercial and two academic accounts said the Novell product gives them more features. Those include faster throughput and easier, centralized management capa-

But the extra features do cost more: BorderManager (with a two-user IntranetWare license)

#### 3Com/Tivoli management CONTINUED FROM PACE S

later to desktops would be easi-

er he said The vendors plan to blend 3Com's network management tools with Tivoli's application anagement capabilities so

users can set policies to govern. from these partners, because of the performance of quirky client/server

\*Current tools can just report on service levels at best. The difficult goal is to actually manage delivery, John Mc Connell, president of McConnell Consulting. Inc. Boulder, Colo.

Network vendors

edding the mare in the

**Duke Energy's** Paul Edm eard can free PC

such as Cabletron vendors, Edmunds Systems, Inc., Cissaid. For example, he would expect co Systems, Inc. and Newbridge Networks Corp. card rendors such as Intel Corp. in Kanata. Onterio, are pursuto also bundle Tivoli agents. ing such policy-based manage-One branch of Lockbred Marment of data delivery tin Corp. has standardized on Competitors Compu cards and other pear from

ciates International, Inc. and Hewlett Packard Co. also seek "But we're not a univendor ways to control, not just monishop. We have enough non-3Com equipment that this But McConnell said he sees would be difficult," said Bob a good chance of success

> uted control of net work plumbing and CONTINUED FROM PAGE 51. Tivoli's control of first started hearing this about a systems and apolicayear to 15 months ago from a reasonable number of customers Even so, tCom The other day, I gave a speech and Tivoli aren't the before 105 customers and asked only players users them how many expect to have data ware and wides over the Each one should same network in the next three

years. Ninety percent raised their hands. I was shocked CW: Cisco's maintained a furious pace of mergers and acqui tions for several years. Will that

CHAMBERS: Of the markets we're in today, we're only able to address half the areas we'd like to address. The market that is relatively huge and new is voice/data and video integration. Our last three acquisitions have been in this area. And of the 10 to is we'll do in the next year. you'll probably see a third to a

half in shat area CW: You've been quoted as saying that half of all mergers and acquisitions fail. What has Cisco's experience been?

CHAMBERS: Being very can-did, knowing how difficult acquisitions were, we might not have done the first one. In excess of 75% to 80% worked out at or above our expectations. Our hit rates were very good. But if you really want to know how one is

Cisco CEO discusses challenges

really working, look at how many CW: What does Cisco have to people are left. The voluntary pecifically avoid for cont attrition rate for the 19 companies we've acquired has been CHAMBERS: What really (angers me) is when a Cisco

employee is arrogant to a cus-tomer and says 'I know better CW: On the technology front. where does Ethernet switching than you what you need.' That's what can really get us into trouble. At Wang and IBM, we did the CHAMBERS: Many customers wait until a physical move takes same thing. At the beginning, place before implementing neither company did. We have no religion when it switching. Almost all customers going out to buy new products to comes to technology. We want to

put in today go straight to be No. 1 or 2 or not compete. switching because the price of We est our own young at an switches compared with hubs is unbelievable pace getting so tight, you'd be foolish That's something most cul tures don't do. If we either see

the trend changing faster than CW: What is your greatest fear about Cisco and its future? before or see a new trend coming on, we jump on the bandwagon CHAMBERS: It's easy It's regardless of implication on current neoducts keeping up with customer expectations, because they're increas I acquired IATM switch ven dor) Lightstream for \$120 mil

staying close to the customer. fion. It was a good product with We get simost all of our ideas for very talented engineers. They products, features, acquisitions had a good next-generation and trends in the industry from product on the drawing boards But all of a sudden, our cus-It was Motorola that told us mers said, 'John, you don't about SNA-TCP/IP integration understand. We're going to make and helped us work through that decisions over the next year o Ford and Boeing pointed us to two for vendors who have the products available now. If you [Fast] Ethernet. Boeing went further than that and told us what don't have it, you can't partici-

pate." So we scrapped the switch

and bought Stratacom, Cl

3COM AND TIVOLI'S MANAGEMENT PLAN

Early 1998 - 3Com distributes Tivoli agent with its network adapters PCs and servers can be managed from TME 10 framework

MISSIPPE - 3Com ships remote-update tool for its network adapters

3Com users can distribute new drivers

Late 1990 - 3Com and Throll manage network delivery rks built on 3Com adapters and

ary great person stands another great person. In this case, it happens to be more than 65,000 service puspls. For over 15 years Compay has worked with some of the finest service partners worldwide. Today our combined expertise provides our customers with the most comprehensive IT life-cycle researchers services possible. We plan. We implement. We maintain. We upgrade. We listen to your specific needs. Then we deliver solutions that have a positive impact on your business. As the company that sells the most computers on the planet, we believe that one person has the power to change the world. 65,000? The possibilities are endless. www.compaq.com/support COMPAO.

# Long-distance carriers rate higher

CONTINUED FROM PAGE SI

Surveys in recent years show local carriers rate higher with business customers than companies in the wireless or cable categories, but not as well as the big long-distance companies.

Consumers, however, tend to rate their
local carriers higher, surveys show.

Analysts expect users' perceptions of
their current providers to shape the development of the \$100 billion local carrier market following deregulation. The

market is now dominated by six companes, but as soon as state and federal regulators grant them the OK, all six will scramble to sell long-distance data and voice services and Internet access. But long-distance carriers also have begun to compete in the local market. "I'd rather have another local provider... has where we are, that's the only one" said Tony Dattola, a network engineer at Perot Systems, Inc. in Plano, Texas. Perot uses GTE Orp. in Stamford, Conn., as its local provider.

"They're not responsive when you have problems, and they have lots of unexplained busy signals." Dattols said. "In my opinion, their [network] is undersized for the area we're in. They won't come and tell you about problems, or.

they'd have to pay penalties." GTE officials said they were sensitive

to Dattola's concerns and are seeking to exceed his company's expectations. But generally, GTE internal surveys of business customers show that GTE is just as competent as regional Bell operating companies and long-distance com-

#### NOT PREFERRED Another indicator of customer dismay

with local carriers comes from Ken McGee, an analyst at Gartner Group, Inc. in Stamford, Conn. He recently asked a crowd of several

hundred business telecommunications managers at an Orlando, Fla., conference if any favored using their company's local provider as their long-distance provider. None raised their hands. "I've been doing that same survey for

Two even doing that same survey for to years, and the results are always the same." McGee said later in an interview. "There's a groundswell to fire the local carrier. It's a product of a number of years of being held captive — and pent-up resentment."

winter Learning, the retection/CMS Healthcare Corp. in Albuquerque, N.M., said after years of experience in telecommunications, he hasn't met a manager who likes his or her local provider. The perception of distrust of local car-

The perception of distrust of local cartiers by business users is widespread but in somewhat unfair, said Rosemary M. Cochran, an analyst at Vertical Systems. Group in Dedham, Mass. "The local cartier is the last link [in a voice or date connection], and it's naturally going to be blamed for whatever the problem is," she said.

Analysts, carriers and users arrived

that most business customers want to simplify their purchases of telecommunications equipment and services. And that means carriers will put on

And that means carriers will put on the full-court press in marketing their guarantees, prices and attributes to network managers. Cochran warned network managers

that as local carriers focus more on providing long-distance and other services, they could end up reducing services to favored, large customers such as banks that operate in a specific region.

"If you're the top dog in a region, you'll get the attention of a local carrier."

"But when the local companies focus attention nationally, all of sudden, you're not so big. As deregulation catches on, the local carriers might end up specading resources more thinly," he said. O



In you we scanned that megapites or costorm applications development, now's the time to prove it. Enter your innovative Microsoff Windows' solution in the seventh annual Windows Wind Open today. It's the international competition that recognizes the best in Windows development. And isn't reaching the low what your journey is all about?

Schmidt year entry by January 23, 1998, and

Submit your entry by January 23, 1998, receive the recognition you deserve.

W W W . W W O P O R . C O M Visit the centest Web alic to download an entry hit, most last year's winners and got dotatic about this year extensions. Email workload care and MARTALIST.



Microsoft CHPUTERVILLE SOSTANAY

N THE ROUGH AND TUMBLE WORLD OF INFORMATION TECHNOLOGY, SYRABE PROUDLY INTRODUCES A WAY TO NELP US ALL LIVE TOBETNER IN PEACE, IT'S CALLED ADAPTIVE COMPONENT ARCHITECTURE: AND IT IS TRULY A DIFFERENT KIND OF ANIMAL. | WITH ADAPTIVE COMPONENT ARCHITECTURE, OPEN COMPONENTS ACCESS DATA FROM ANY DRMS, USING STANDARD COMPONENT MODELS. MEANING YOU'RE NO LONGER LOCKED INTO A SINGLE VENDOR. > EVEN DUR APPLI-CATION DEVELOPMENT TOOLS ARE OPEN. WHICH MEANS THAT THEY INTEROPERATE WITH ALL OF YOUR

COMPUTING APPLICATIONS NO MATTER WHOSE TECHNOLOGY YOU USE. ADAPTIVE COMPONENT ARCHITECTURE IS A COMPLETE, INTEGRATED, END-TO-END ARCHITECTURE THAT INCLUDES EVERYTHING FROM HIGH PERFORMANCE DATA AND TRANSACTION SERVERS TO LEADING EDGE MIDDLEWARE AND ENTERPRISE DEVELOPMENT TOOLS. F IF YOU'RE READY TO REAP THE BENEFITS OF LIFE IN A COMPATIBLE WORLD, CONTACT YOUR FRIENDS AT SYEASE AND ABK FOR DUR ADAPTIVE COMPONENT ARCHITECTURE WHITE PAPER. VIBIT US AT WWW.BYBASE.COM/BUCCESS. YOU'LL SEE HOW COMPANIES ARE USING OUR TECH-NOLDGY TO FUNDAMENTALLY IMPROVE THE WAY THEY DO BUBINESS. OR CALL 1-800-8-SYBASE (REF. ACCW2).

CREATE NEW CUSTOMER - CENTRIC



THE FUTURE IS WIDE OPEN.

WITH DISTRIBUTED APPLICATIONS, A PROBLEM IS ONLY



**!**Candle

#### Software

Databassa + Development + Operating Systems

# Briefs Flavored Java still wins users

opment costs

Cost

\$434,000 per application

 Users say they like lava with or without cross-platform functions

By Sharost Gaudin some users are nervous about Sun Microsystems, Inc. and

IBM working oo Java native code compilers. But Java is gaining a following of developers who place it above the industry's powerhouse languages for building platform-specific applications

Two of Java's buggest prom ers, Sun and IBM, are working

on native code compilers de-signed to light a fire under lava's often-malianed performance [CW. Oct. 27]. But using the compilers would mean

killing the language's cross-platform capabilities, the very thing that attracted an estimated 750,000 application developers in the past 18 months.

Several developers, howeve said they would continue to use the fledgling language - often attacked for its sluggishness and immaturity - even if forced to write applications that worked on only one platform. \*Our productivity is so much

few characteristics that come

They assign roles to workers

REVIEWS PC utilities

Workflow, page 60

Software reduces grunt

grammers when they're using Java," said Thomas Taylor, chief technology officer at Workfire, Inc. an Internet software company in Bellevue, Wash For a large-scale enterprise proam, lava is very much superior. If

you're going to the moon, you're not going to try to get there by



Normally, Java apolets and applications cao run on many different platforms and World Wide Web beowsers because they are compiled into byte code and executed by a virtual ma chine. A Java native code compiler turns lava code into machine code, enabling it to run applications faster but

Java, page 60

ing a tree. That's what i ROOM FOR IMPROVEMENT

ed bef

Re Cordon Mak Uner IAN MANAGER Street McCaffrey has a classic cross-platform -

MACINTOSH MARKET

**Users** wait for

cross-platform

Office 98

With more than 250 Macintoshes to support, he can't move his Windows 95 users to Office 97 until the PC and Macintosh systems can exchange files easily

"We don't plan to implement Office or or off until it's available on both platforms," said McCaffrey, who works at Boeing Aerospace, Inc. in Houston, "I it doesn't work on both, it's not

worth investing in. That's a problem Microsoft Corp. said it recognizes and hopes to address when it releases Office 98. Macintosh Edition,

ther winter Microsoft, with an estimated \$1 billion in Macintosh software sales, has a considerable stake in the Apple Computer, Inc. user community. Io August, Microsoft invested \$150 million to shore up the financially troubled Cupertino, Calif.-based

computer maker Office of for Macintosh promises to be completely cross-platform with previous Macintosh Office file formats Cress-platform, page 60

**Workflow software** aids app development

By Burb Cole-Gomobki

in handy when managing WORKFLOW SOFTWARE, typically groups of programmers, users used to speed the processing of business forms, may help companies get a handle on which helps project managers unruly software development enforce corporate policies on who can authorize system Workflow systems have a



work for Windows users By Howard Millman EVEN THE BEST of software usu Cottonwood Software's File-

ally has room for improvement - especially simple, affordable enhancements that can minimize drudgery.

FILE-EX In the top tier of avoidable drudgery is the need to change the file and directory listings in

Windows' Save and Open dialog Perfect). boxes. That's because these two Version a.1 is available now standard dialog boxes always return to a default directory, usually the same directory the application resides in. Naturally, you don't store every one of your documents and files in early next year

that one directory; you must always change to the directory you want.

Ex (\$29.95) elegantly eliminates that exercise. This first-rate, yet suming, utility enhances the Open and Save dialog boxes of every application that doeso't offer its own customized dialog boxes (such as Microsoft Corp. s Word and Corel Corp.'s Word-

and works with Windows 95 and Windows at (gaining the benefit of long file names). A Windows NT version will ship File-Ex, page 61

# (You'd be surprised at all the connections you

If, by chance, you're not surprised at how open IBM Serial Storage Systems manage to be, then their remarkable performance will raise an eyebrow or two.

First, these open disk systems are designed to connect to UNIX® servers, including HP, Sun and DEC. And NT servers, like HP and Compaq. Not to mention IBM systems, too.

Then there's the added advantage of speed. A Serial Storage Architecture, which is an ANSI standard interface, is used with a two-way loop to handle inbound and outbound data streams simultaneously.

This helps make our Serial Storage

GM and Solutions for a small planet are trademarks of international Business Mischines Corporation in the United States and jor other countries. UMX is a registered buddemark in the United States and other countries, learned endurants or service ments of others. Or 1997 BM Date.

can make with IBM Serial Storage Systems.)

Systems significantly faster than traditional SCSI disk systems.

As a result, more of your users have faster access to valuable data. For applications like data mining, data warehousing and transaction processing.

And the future? As your storage needs

inevitably grow, you can easily increase capacity. Without taking your business systems offline.

Visit www.ibm.com/storage/connections to learn more surprising ways you can maximize access to stored data.

Solutions for a small planet " I H

# Sun. IBM plan Java compilers

#### CONTINUED FROM PAGE ST

nly on a particular target platrm, such as 52-bit Win or Sun'a Solaris version of Unix. Sun and IBM are working on ers for various platforms. An 18M spokesman said the company doesn't want to defeat Java's platform independence but wants to give developers a chance to optimize the applica-

tion's performance. SuperCede, Inc., an application development toolmaker, has built a Java development en-vironment that gives developers the choice of having their Java applications compiled into byte code or machine code.

#### Ted Schadler, a software analyst at Forrester Research, Inc. in Cambridge, Mass., said lava is starting to come into its own as an important development language. He said Java is a good language because it has garbage collection and automatic code

'These are things that lan guage purists dream of for good reason. We're at the tip of the iceberg in the real benefit to developers with Java," Schadler

Frank Manci, a network tech nical manager at Colonial Savings FA in Fort Worth, Texas said he is worried that Sun and IBM will devote less develop ment time and money to improving Java's cross-platform performance. And although he is focused on platform independence. Manci said Java is a good sguage, even for platform-spe-

"It was an immature lanage, but it was really new and that's the way it goes," Manci said. 'But it's coming along. Sun's doing a lot to it. and it's a decent language now."

#### IS MATURITY Link Alander, coordinator of

division research and systems at Western Illinois University in Macomb, said Java has matured

"We've been watching it for awhile," Alander said. "Crossplatform issues are being com pietely exaced. Iava has matured enough for us that we're looking at retraining and retooling." ()

# Workflow software aids app development

H E W

CONTINUED FROM PAGE 57 changes. Workflow applications

also divide complex processes into manageable tasks that can be handed out and tracked by a Applying workflow principles

to software development could help information systems managers deliver more projects on time and within budget. According to The Standish Group International, Inc., a research firm in Dennis, Mass., 40% of software development projects are canceled before completion, and 11% are late or

over budget. Only one-third of projects are successful, accordng to Standish's survey of 160

# Users wait for cross-platform

Office 98

CONTINUED FROM PAGE 57 and with Office 97 for Windows 95. It will offer most of the satures of the Windows version and will be able to replace shared files that were deleted. IS managers will be able to configure Office before deploying copies of the suite to desktops. Microsoft also hopes to address user criticism that Office looked and felt too much like a Windows application. Usera had complained about the shape of Office dialog boses and even the

non-Macintosh colors. One thing the suite won't offer is a Microsoft database application, which some users said was a flaw. 'I with they would have Access. It is a shortcoming," said Darrell Debower graphics technical director at the Cleveland Clinic Foundation, a medical center in Cleve-

land. Debowey said Macintosh users now access the Microsoft database using emulation software that is clumey and slow McCaffrey echoed Debowey's hopes for Access on the Macin tosh or at least better tools through Microsoft Excel to

reach his company's Oracle database. Matthew Price a group product manager for Of e, said Microsoft won't offer Access until there is a clear market for it. The Office suite for Macintosh will be integrated with Visual Rasic for Applica tions, a popular Windows-based application development tool.

Mike Logan, program engi neer at AlbedSignal, Inc. in Redmond, Wash., said the workflow underpannings in the StarTeam software process man agement system from Irvine. Calif. based StarBase Corp. provide a model on which the com pany can base its development projects. For example, Logan is building software programs to guide the navigational devices AlliedSignal makes.

PROJECT STRUCTURE 'In the past, [software development] was pretty loose," Logan said. Now, project requirements and documentation are tracked in the system. StarTeam's col-

laboration features, such as threaded discussions and links to electronic mail, also allow developers to stay in close comrunication about a project. At Eaton Corp. in Milwaukee, StarTeam's threaded discussions mean that "if I have a question

about a piece of code, I can launch a conversation about it," said Steve Aninye, principal software engineer at the machine control giant. Eaton uses Lotus Notes, but the company benefits from StarTeam's collaboration features because they are so tightly integrated with the software de-

those discussions and makes changes based on their input, Aninye said

Lexis-Nexis in Dayton, Ohio. reduced the time it takes to provide a software development project plan from three weeks to one, according to a sensor project manager at the online publisher. It did so by exploiting some of the workflow features of the Process Engineer software development system from Learmonth & Burchett Manage-

ment Systems in Houston. Specifically, Lexis-Nexis has benefited from the bestpractices library that defines roles and responsibilities for development system. Eaton also gives select customers access to velopers. D

#### SEAGATE TECHNOLOGY, INC., has announced WinInstall 6.o, a software distribution utility for client/server systems.

According to the Scotts Val ley, Calif., company, the new version supports distribution via the Internet through ActiveX control and however plug-ins included with the software. Workstation cloning capability and Simple Mail Transfer Protocol electronicmail notification of status are included. Installers that reside on the client have been rewritten in C++. WinInstall6.0 costs \$15.00

per norte agate Technology of) 418-6500

#### MLIFNIX CORP. has annou FreeSpace, a utility for Win-

dows or and NT that increases hard drive space by selectively compressing files. According to the Madiso Wis., company, the utility allows users to compress programs, graphic files or docu-ments from the file manager. Analytic tools graphically dis play space usage and help users select files for compression. Files automatically de compress when attached to electronic mail. A "file type"

feature compresses all files of a certain type (for example. BMP files PreeSpace costs \$49.95

(608) 277-1981

NETWORK INTEGRITY, INC. has announced Real-Time Replicator for NT. software for Windows NT servers.

PRODUCTS

According to the Mari Mass., company, the software was designed to copy data from NT production serve to target servers. That lets users conduct tape backup on target servers while keeping production servers online and accessible 24 hours per day. Real-Time Replicator's mini-mal bandwidth approach replicates only data that has

changed either at the byte level or the file level It costs \$2,999 per server Network Integrity

SMART STORAGE, INC., has announced SmartCD, software that lets network users share a'CD recorder in a Windows

95 workgroup envin According to the And Mass., company, the software uses a variable packet writing approach that lets users save data to a CD just like they would to a floory disk or hard drive. No CD premasterine is

One or many users can copy files to a CD - as well as open, edit, rename and delete - while keeping an audit trail because CD is a rmanent storage med SmartCD costs \$425

8) 623-3300

SYMANTEC CORP. has nounced PCAnywhere32 8.n. remote communication software for 12-bit Windows environments, including Win-

dows NT 4.0 from Microsoft According to the Cupertino. Calif., company, Version 8.0 has caller security that is integrated in the NT User Manager so users only have to re-

member their standard network password. The software also includes integration with free desktop video-chat software from White Pine Software, Inc., so users can switch from a live remote control session to a face-to-face videoconference using the PCAnywhere tool

A two-computer license costs \$140.

(541) 334-6054

#### BN has announced ViaVoice, suous dictation soft-

ware that lets users talk to their computers in a normal spoken voice. According to the Armonk N.Y., company, the application enables users to dictate direct-

into Microsoft Corp.'s Word at a rate of 14n words per minute. The total vocabulary can be up to 64,000 VisVoice costs \$99.

#### Software reduces grunt work for Windows users

CONTINUED FROM PAGE 57... File-Ex installs effortlessly, immediate ly supercharges Windows' puny Open/ Save dialog botes and is absolutely trans-

rent in use. Online help files provide most of the information peeded to manage the application. Free support from onwood, via telephone or electronic mail, fills in any blanks.

With the latest version, dialog boxes w list more files and directories, so you scroll less. New buttons (including elete, rename, move, copy and find) let you manage files and directories without opening another window or resorting to noning Windows 95's Explorer or Windows 3.1's File Manager. You can already do some file management with a right-click shortcut in Windows 95, but File-Ex makes it much more obvious, especially for the novice user.

The one improvement I'd like to see is the inclusion of more preconfigured applications. File-Ex ships configured just for selected versions of Word.

KEYBOARD EXPRESS

Keyboard macros offer another way to avoid repetitive work. But in some applions, creating a macro-demands more time than it saves. Insight Software Solutions, Inc.'s Key-

board Express (\$24.95) lets you add hot key-activated macros to multiple applica-tions. It's fast, simple and reliable. It caused no problems or conflicts running in a fully loaded Windows 95 machine. Building a macro takes as little as a few seconds. You load Keyboard Express

by executing it manually or, as I do, by placing it in the Start menu so it loads automatically. To create or execute a macro, you summon the configuration dialog by combining the Control key with a right mouse button click. Next. click on the oversize "Add Hot Key" button at the top of the application window.
Keyboard Express lets you build your

macros using a combination of specialnction and control keys (such as Alt, Page-down, F1 through F1a, Arrow and Space). Other special-purpose keys create a delay (measured in seconds), post a message in a predefined area of the screen or call a program. You can nest macros, repeat events and add sound support. For example, you can play a

way file in conjunction with an alarm. When it comes to programming, no matter how simple it is, I try to make it even easier. So instead of building a macro, I opted for the Capture Keystrokes option.

Once assigned to a hot key, Keyboard Express' macros automatically ent repetitive text or execute a series of tasks on operates the Data System Ser-

vices Group, a vendor-independent consu tency in Croton, N.Y. Reach him at que-272-6881 or hmillman@ihm.nct.

in any application. Use the hot key macros globally in any word processor, neet or E-mail application or confine the macros so they execute only when a specific window is open.

A comprehensive online help system clearly anticipates common requests. After that, it's a matter of experimentation.

As an aside, when I ordered Keyboard

SenartBoard caused intermittent lockupe Express, Insight Software generously

sent me a shareware copy of a Windows Clipboard enhancer, SmartBoard. I advise caution before using this utility. and other behavior problems.



#### It's Not How Much YOU READ.

You can read a knee-high stack of computer may each month and still not find the depth and breadth of news and information you'll discover each week in the pages of Computerworld.

As the only weekly newspaper for IS professionals, Computerworld is filled with up-to-the-minute articles on topics ranging from products and people to trends and technology. We cover it all - PCs, workstation mainframes, client/server computing, netw communications, open systems, World Wide Web. intranets, and more.

It's everything you need to know to set an edge on the competition

That's why over 152,000 IS professionals pay to subscribe to Computerworld. Shouldn't you?



#### IT'S WHAT YOU READ.

Order Computerworld and you'll receive 51 informs packed issues. Plus, you'll receive our special bonus publication, The Premier 100, an annual profile of the leading companies using information systems technology.

Call us toll-free at 1-800-343-6474, or visit us on the World Wide Web at http://www.computerworld.com. To order by mail, use the postage-paid subscription card bound into this issue. And get your own copy of Combuterworld.

Then you can spend less time reading about the world of information systems. And more time conquering it.

COMPUTERWORLD

will never be as easy, as dependable or

Fold page so point a meets point b.

as reliable as voice networking.

See how Inter NetWorking"
from Lucent Technologies
is changing the face
of networking.
For more complete
demonstration,
contact a Lucent Account
Executive, (Me/She will
bring you into the fold.)



1

#### Servers & PCs

Large Systems + Workstellees + Portoble Compating

#### $\operatorname{Briefs}$ AlliedSignal juggles data

Software tools help ease storage shuffle

By Tim Ouellette

ALTHOUGH ITS mainframes and servers were finally in the same place, the moving had only just begun for AlliedSignal, Inc. low, instead of moving physical systems and servers into one location AlliedSignal had

its hands full with huge chunks of corporate data that had to be juggled around to provide relie service levels and to keep a lid on costs, said Jess Fawns, systems project manager at AlliedSignal's Tempe, Ariz.,

As more com AlliedSignal centralize their da ta center operations, they are

iding reasons to shuffle th data among different disk subsystems to gain efficiencies. For example, users are mi

grating data from older disk as rays to newer, more powerful systems, off-loading data to difent disk arrays for year 2000 ng, isolating some depart mental data on certain disk sys tems and creating mirrored copies of critical data in case of

AlliedSignal turned to Am-dahl Corp.'s Transparent Data Migration Facility (TDMF) to help populate aT bytes of the latest mainframe disk arrays from EMC Corp. and IBM and then use the older arrays to host aT bytes of year 2000 test data Previously, this would haw

meant taking key applications AffectSignal, page 65 SERVERS

Digital

builds on Alpha line

#### Business version of Apple's EMate on tap

By Kim Girard

SUSTNESS USERS are ear awaiting a new version of the Apple Computer, Inc. EMate one without the funky, shiny dark-green case designed for

For many users, the EMate is perfect for writing short docuents and surfing the World Wide Web from the road. A cross between a handheld and a lanton with the heft of a hunchbox, the EMate uses the Newton Jobs may be considering the 2.1 operating system and has a EMate part of the firm's strate-PC card modern. The 4-pound gy to enter the network comput

710A processor, 3M bytes of RAM and a backlit screen. In online discussion group the lingering question is, when will Apple release a business

version of its education-friendly - a machine you won't feel silly about pulling out at a business meeting.

Apple isn't talking, but ana lysts said the EMate 1000 is due within several months and said Apple acting CEO Steve

APPLE EMATE 300

er market. Network compute are low-cost, stripped-down PCs for accessing the Internet and EMete, page 65

By Jailtomar Vijayan DIGITAL EQUIPMENT CORP. last week pumped up its Alpha server line, even as analysts were debating the long-term future of the Alpha chip follows a settlement between Digi and Intel Corp

The highlight of the an nouncement was the new dual processor AlphaServer 1200 sed on the 400- and 533-MHz. Alpha chip and supporting up

to aG bytes of memory.

The midrange system at ports Windows NT, Digital Unix and OpenVMS operating sys terns. It will target small Inter net service providers as well as database, data warehouse and data mart applications. Prices

start at about \$16,700: "It looks like it is com at a pretty good price. It is a nice replacement for the (previ ous atoo" midrange system; said Rob Young, VMS manager at Alpha user BDP Internation-

al, a freight shipping company in Philadelphia. Digital also introduced chips, Alpha, page 67

#### Compag NT model extends reach h as Hewlett-Packard Co.

Dy April Jacobs

WORKSTATION USERS looking for price breaks and performance parity are getting more options om the Wintel camp as PC market leader Compaq Comput er Corp. continues to push new Windows NT models as a Unix

which entered the workstation market a year ago, plant to ex-

ed its reach into the pricesensitive low end and the per-formance-based high end in the next year. It is an attempt to

in Microsystems, Inc. and IBM, all of which have long histories in the workstation man ket, analysts said. Pricing could pull some us over the fence, with Compaq

rkstations using com-Intel Corp. processors and aver ing \$7,000 to \$10,000 less an competing RISC-based



#### RDBMS had a good run.



Post-Relational Database.

New Dimensions of Transactional Performance.



#### AlliedSignal

disk systems and networks down, son thing that is even harder to do in a newly centralized data center (see chart,

page 61). We want to limit exposure to our customers [users] and making them endure shut downs," Fawns said. "They don't want to know that the data is being

moved; they just want access TDMF can move data without systems terruption among disk subsystems from various vendors. Competing tools

from IBM, Hitachi Data Systems Corp. and EMC move data only amone their own commony's disk arrays And though some users may shy away

from the expensive price tags on mainframe-based data replication schemes often hundreds of thousands of dollars the trend of data center consolidation

is helping to bring the price down For example, instead of buying licens-

#### EMate 1000

Apple isn't discussing plans for EMate or its other personal digital assistants (PDA)

Graham Barron, a Web developer at Red #40, a Web design company in New York, said an Emate business model should be smaller, sport a color monitor and have a sleeker case. He said he is rested in an EMate if it is integrated with Apple's network computer strategy The EMate fits nicely as an adjunct to a desktop machine," he said.

Carlos Pero, a project coordinator in digital publishing at the Chicago Tribune said he wants to use an upgraded EMate to take notes during meetings

"I just need something that allows me to type and easily download to my comr when I get back to my desk," he said. With the upgraded EMate, Pero said, he wants real-time access to his rork so he can troubleshoot when necessary. He also wants a way to read Microsoft Word files without having to

The Largo, Fla., Police Department is using the EMate in police cruisers and expects to get an upgraded business model of the system within several months. The department uses modern cards in the FMate's one PC card slot to let officers connect to a wireless Cellular Digital Packet Data network

Sgt. Brian McKeon said the EMate is far more cost-effective than laptops. It is also more durable than laptops, which are prone to damage and are more heat-sensitive when locked in cars all day. But other users don't see much use for the EMate. Tod Caffisch, director of ation systems at the San Antonio urs Backetball Chib Ltd. in Texas, said, There's not a lot of status in sitting on an airplane playing with a PDA when you can pull out a laptop. "

es for several disk subsystems at the nine data centers it used to maintain, the serican Red Cross was able to afford EMC's Symmetrix Remote Data Facility software when it pared down to two data centers, said Tom Woteki, the Red Cross'

chief information offices But these tools aren't just for the mainframe world. As more Unix and Windows NT servers find their way into the data center and open systems storage

demand explodes, the same data shuffle will be needed for these disk systems. To address that, Ark Research Corn. a San Jose. Calif., start-up, next month ans to ship a system that perf

high-speed, real-time data replication beeen different Unix and Windows NT disk subsystems from any vendor. The Ark System CDAS/2000 aits between servers and disk subsystems and can quickly mirror client/server data.

back-up and rem back-up and recovery center with an additional liceme of PATROL. "To be

constal in a changing global must

address new business oppo-

and awickly to the local care

on organization must be flexible and able to

larm Maralit. "Hence, each SSS date

ter has its own database to help it

PATROL is event driven and can

ste databases. As a result, we as

enanage vertually any application providing a

prognetic alternative to contrabated

have PATROL-based management control from the head office," says Marakt. "We

would like to have the same flexibility and

This mean that if a server goes down the system switches over to a mirrored copy on a separate disk system without any delay. Officials said the ha stem is meant to work alongside main frame tools and server clust schemes such as Microsoft Corp.'s Wolf

The Ark System will be-unveiled at Comdex/Fall '97 next month. It costs \$8,005.0

Advertisement

#### Reliance for Security and Flexibility

Philippines Social Security System relies on the strength of PATRO to manage its distributed computing system

hen the Philippinos Social Security System (SSS) decided it the detributed Oracle databases and Unix servers across its nine fully functional data centers, it those PATROL product from BMC Software. rom getting trapped in a cycle of systems folures which commonly occurred due to ne errors and crashes. In add

hage database of applications, systems resources and files needed automated enterrise wide monitoring and coor along with projective systems manageme to analyze and ountrol the perfor our distributed computing environ sass Tory Marsh ration group, SSS.

The SSS evaluated various products and found, with the exception of PATROL, they did not support all multiple platforms in the organization. In particular, PATROL was the only evaluated product that, o port SSS machines running on DEC Librix.
"With PATROL's multi-vendor support. its ability to improve management offi

and speed up system maintenance, through tion of many routine tasks, a the natural choice," Maralit explains. The SSS also took into account the strong local support and the technical expertise that would be provided by BMC Software's dis and that with PATROL's product-up standardon terms and effort recessions to train staff would be substantially reduced.

errement-corned SSS access a range of figureral services, such as bousing, salery and stock share losse, through 54 brand across the country. Of these, mine branches serve as fully-functional data centers. The results with PATROL project vere immediate. Reduced down

ment container service and breakfered staff productivity Costs, relating to sechearal et were reduced too as the SSS no longer had to rash support personnel to var sous branches to correct pistern errors and PATROL product-specific expense for

pentoring and automating processes, also leveraged the technical skills of the administrative staff and helped reduce training requirements, as well ome more efficient as PATROL kers nts: and regular track of network and these activity. PATROL easily

more Oracle databases as at sun and centralized the control of critical

Currently, PATROL come on the organization's SCO Unix. DEC/OSFI and IBM RS/6000 machines. In agents are running on SCO Unix. DEC/OSFI, IBM RS/6000, Sen Server and DEC Utrix machines. All databases and Unia machines in the remote offices are entered centrally from the head office ing PATROL. With proactive system ided by the product, only two dambs inistrators and two systems administ tors are needed at the head office to me and control the databases and

nes in all same offices. The SSS as now planning to establish a

ch is why we have requested anothe

#### "DIGITAL

is supplying PATROL® software with every

AlphaServer system we ship worldwide, as

well as reselling PATROL. We do this for a reason.

PATROL supports the applica-ROL tions, databases, and platforms our customers rely on, and it integrates seam-

lessly with the DIGITAL ServerWORKS management solution our customers are already using. ??

Jacob Lippon, Vice Presid

Top industry leaders are relying on To find out why viest us on the

## Go explain to the CEO why you thought 94% virus defense was good enough.



Latinath percentages. If your arti-virus package delivers 94% detection, there's still a 6% chance you'll be totally servened. And when that happens, there's exactly a 0% chance the CEO will understand. Fortunately, there's McAfee, the anti-virus defense with 100% protection.

#### OCKS EVERY POINT OF ENTRY

McAfee Total Virus Defense (TVD) Suite goes beyond traditional anti-virus protection to provide 100% network security, it extends our number one anti-virus software to protect all points of entry—the client, server and internet gateways. But trinses aren't the only threat to your network TVD prevents

points of entry—the client, error and internet generacy, But irruses aren't the only threat to your setcort. TVD prevents attache by aignantial employees and internet hackers. When the other budletproof client and server encryption, authentication and firecult wipour. IVD keeps the roring people away from your date.

#### PROTECTION FROM VIRUSES THAT DON'T EVEN EXIST YET

All McAfee anti-virus products include support from AVERT, SECLIBERT ST ANTI-VIRUS Emergency Response I from: With reasonst centure workshede you get online support 24 hours a day. Also, our wantupe Searce Caestres automatically pashes updates and elerts, directly to your PC to protect you got the latest virus schinds: which the new Office? Homewo viruses.

#### CHOICE OF THE FORTUNE 100

100% detection. 100% hacker protection. The choice of 80% of the Fortune 100.

Now these are numbers even your CEO will understand. For more information, call

1-800-332-9966, department 321. www.mcafee.com



MCAFEE Name Strong & Management

#### Compag

CONTINUED FROM PAGE 63

Users said they like the Pentium and NT-based workstations for several reasons, including their lower price than RISC-based systems such as those from HP and Digital Equipment Corp.

Users also said it is easier to ac er Windows NT workstations with Win dows NT servers than it is to support Unix-based workstations and Wind NT arrects

Larry Garden, manager of technical op-erations at Brewers Retail, Inc. in Misrauga, Ontario, said he has about 1,250 workstations that run Windows NT Workstation as well as more than 40 Windows NT servers. He has been moving users away from Sun SPARCStations because he finds the NT environment

nier to manage. But the company will continue to use Sun servers for its Oracle database because performance is better, Garden said. 'Most of my users are now aware

#### DEC builds on Alpha

CONTINUED FROM PAGE 43 ranging from a 500-MHz upgrade on the AlphaServer 800 to a 725-MHz veron on the highest-end 8400 model. Last week's announcements symbolize he dual-processor strategy that Digital is

ected to continue in the short term wing the settlement with Intel. Under that plan, Digital will offer high-end Windows NT-based Alpha sys-tems for businesses willing to pay extra for the higher performance. At the same

ime, Digital will continue to aggressive y push Wintel boxes for a broader mar-

But Digital's settlement with Intel could result in an accelerated move away from Alpha technology in the long term.

Digital and Intel last week agreed to end their patent-infringement lawsuits der a deal in which Intel will buy Digal's Alpha semiconductor manufacturing operations for \$700 million. Digital till continue to design and develop fu-are Alpha chips, which Intel will manu-

facture for them.

Although Digital has promised to continue with Alpha for the foreseeable fumost analysts said the compodeal with lotel means Digital will quickly cut over to the emerging IA-64 chip ar-chitecture that Hewlett-Packard Co. and

Intel are developing.

Users said Digital's deal won't cause any near-term disruptions, although questions remained about the future (see

ory, page 33). mon, editor of the "Shanon Knows DEC" newsletter in Ashlar ss., said that in the short term. "the Alpha road map will remain intact. All at is happening is that Digital is going the "fabless" mute." Cl

they can run all their applications just as well on NT-based wo os," he said Analysts said that although Compaq's rategy to lead the NT work ket is sound, it may have trouble reach ing high-end users, particularly in spe

lized areas that require extens partnering with application develop To that end, Compaq announced low, ge and higher end syst the past six months with Pentium Pro

and Pentium II-based con feature three-dimensions asional graphics suprt, dual-memitor support and Unix in operability through third-party soft re aimed at engineering and high-end

ident of Workgro N.H., said users with CPU-hungry appli se y-O graphics m nain loyal to RISC-based systems until

nancial users. John Dunkle, president of Work, trategic Services, Inc. in Portug

NT has wider third-party app support for applicati as such as y-D

He said competitors such as IBM have far more experience in the worksta market and enter sive software p ips, making them attractive to high

The Pen we itself in the high-end workstation market, Dunkle said. []

Advertisement

#### **Smooth Transitions**

Louis Poulsen & Co. smoothes their transition to SAP R/3 and open systems with PATROL

rk's Louis Poulsen & Co. A/S is known internationally as the manufac of the world-famous Pllamps, and as sellers of electrical appliances. Louis Poulsen has its production wing based in Denmark, but sales and distribution offices are spread around the wor on four continents. Consequently, it is a company with sim requirements for advanced potion management, effective logistics, and continuous budget control across a geographically distributed

To more effectively meet the to move their IT operations from an IBM mainframe system to an S R/3 solution running on IBM RS/6000 hardware with the Informit RDRMS

fit is obvious when the tire system is running smo so matter where in the world requests come from, everyone receives up-to-date and exact information. However, when things are not running smoothly, the problems are also obvious.

Louis Poulsen realized they could more effectively utilize client/server solutions if they made automated ent part of their ov agement strategy. Their first step was to introduce the IBM NetView product for manag of their network environment. The next step was to incorporate auto mated application and datab through PATROL® Management Suite of products from BMC Software.

Peter Jacobsen, manager of IT erations states that, "without a ubt, automated monitoring of the Informix database, especially the PATROL features that belp dorum log files do not overflow, has belg avoid a number of situal would otherwise have rest

When BMC Software announts in 1996 a PATROL Knowles Module that would proactively ma age SAP R/3, it was an easy decisi for Louis Poulses to trial the prod-uct. "SAP R/3 comes with a systems management tool called CCMS," sen, "but to use it you ed manual interaction. PATROL pave as the ability to automatically tor relevant R/3 para and, at the same unit, and to about them presented to us in context with other information from PATROL about our databases and platforms. With PATROL, we get a complete overview about d, at the same time, have inf bow our app

PATROL, Loui ulsen learned of a number of ortant parameters in their appliconnent that could be

tion availability and aprove performance - parame ney didn't even know the existe of before PATROL. Now, at as time, they have instant access to the en, "With PATROL, we h a tool that allows us to drill de into our systems, applications a ses for information. P PATROL lets as know if changes we are making in one area of our on s will have a negative im

ored and tuned to sup

on other areas. There are still many things we have to learn about PATROL, but we definitely know it is necessary for future management and tening of the system as well as our insurance for keeping up with the end users' demands for



is important that our customers have management tools like

PATROL that can ensure optimal performance and high availability.

stry leaders are relying as PATROL for a meson. To find out why west us on the W



Militaria da Militaria spesial e de pende e arres uma er apenda apenda e tentros d'Alberto, ne e to de e de pendentes de la Parlación de pende e de pende de la pende de pende de pende de la pende de pende de pende

Despite an early lead in technology, will America end up playing second fiddle?



America's IT industry. The best in the world. But we're throwing away our leadership. Because our knowledge and skills aren't being passed on to enough of our young people. Tech Corps pikes your corporation a vehicle to change that. By supporting a grassroots program of the p



mort to enrance teaching and learning through technology. And give students the stells they need to keep our country number one. Discover the rewards of becoming a Tech Corps Corporate Sponsor. 508/620-7751 • http://www.ustc.org America needs to know.

#### Overview

Infernational Data Corp. (IDC) believes that 36-rack tape technology will ship well into the next decade and well manishan a dominant position in the high-end half-inch installed base for at Joset the mean five years. Our research shows that 36-track technology is well-suited for high-access, performance-sensitive small object tape workdoads. The large installed base of 36-track drives may further elongate the technology's life cycle.



### 36-Track Tape is Alive and Well

#### Highlight

- 36-track tape will continue to dominate high-end data interchange workloads for the foreseeable future.
- Vendors are continuing their investments in higher-performance and lower-cost 36-track
- Understanding workloads and applications can help users select the right technology.
- Application-specific middleware investments are abundant for 36track technology.
- Data interchange and document/imaging management workloads are a "sweet spot" for 36-track technology.

## and dominating high-end interchange workloads

By JOHN MEARTHUR and DAVID VELLANTE INTERNATIONAL DATA CORP

Square tape technology or, more specifically, 36-track tape, continues to be the mainframe and midrange tape technology of choice. IDC research shows that 36-track technology accounts for more than 80% of vendor revenues for half-inch and mid-sized system applications.
Introduced as the data interchange standard for tape in the early 1980s, half-inch cartridge technology has evolved over the past two decades. One breakthrough occurred in the late 1980s with the introduction of 36-track technology, The introduction of 36-track technology doubled track density, raised performance and improved reliability of half-inch cartridge technology.

Even as vendors develop higher-capacity, high-performance tape drives, their investment in 36-track technology continues. which doubled track density, raised performance and improved reliability. In the last decade, 36-track performance has been increased further through controller, drive, robotic and application-specific software enhancements. Investment protection for the media has also been provided; today's 36-track drives can read—and many can write to—18-track cartridges.

Even as vendors develop highercapacity, high-performance tape drives, their investment in 36-track technology continues. StorageTek in particular has enhanced 36-track performance and automation with faster controllers, libraries and improved tape handling techniques. The company recently announced that its Virtual Storage Manager, which is to begin shipping in early 1998, will support both TimberLine 36-track tape and highcapacity RedWood tape, Sutmyn Storage is shipping a "virtual tape" solution with support for 36-track tape. IBM recently announced 36-

track offerings for the midrange

market. Finally, at least one 36-track tape manufacturer—Storage Tek—is planning to deliver Fibre Channel connectivity for 36-track tape.

connectivity for 36-track they as Leasing comparies have also endorsed the technology by making. 36-track tape their investment of choice. The wisdom of this strategy is demonstrated by high used equipment values and a security of product. Perhaps most importantly, application software and middleware vendors continue to develop applications operific solutions that support 36-track technology.

#### Applications and workloads To better understand the applica-

To better understand the application of tape technology, IDC uses a three-dimensional model, consisting of:

#### ■ Tape workload ■ Application

➤ Industry Tape norkload describes the type of activity performed by the tape devices. It includes:

Backup (for onsite application

Application software and middleware vendors continue to develop application-specific solutions that support 36-track technology.



recovery, offsite disaster recovery and application testing)

 Archival (including near- and long-term archiving)

 Data interchange (where tape is the lowest common denominator of data exchange)

Application refers to the type of business activity supported by the technology. IDC uses four categories to describe application:

- ➡ Business processing
  ➡ Decision support
- Collaborative computing

→ Scientific Business processing refers to traditional activities that support business-critical operations, such as accounting, HR and payroll. OLTP and database-intensive applications are also in this category. Such applications tend to be mission-critical.

are also in this category. Such applications tend to be mission-critical (24x7) and update-innetwix, and have highly random access patterns. These environments show high levels of lape use, with tape data sets created to support report generation, report archive and backups for application recovery, data interchange and application testing.

Decision support applications

environments (which may involve a data warehouse) typically employ OLAP, data mining and data analysis tools to give users information access. These applications tend to be fandwidth-intensive with heavy read activity, often reading the "data interchange" tapes created by business processing workloads. They tend to be business-critical

(i.e., 8x5) but are not necessarily

mission-critical.

Collaborative computing applications, such as E-mail and Lotus Notes, are often referred to as "workgroup" computing. Like business processing and decision support applications, they tend to be read-intensive but have a more unstructured data content.

Scientific applications are compute- and bandwidth-intensive, and vary greatly in data and content tyres. They tend to have become

and vary greatly in data and content types. They tend to have larger I/O request sizes with a mixture of read and write intensity, and frequently (i.e., in the case of geospatial applications) require enormous lapse capacities.

Data life and data access parterns are often a function of industry. For instance, banking applications such as a checking and credit card tend to be on predictable monthly and annual cycles. Transactional volumes are affected seasonally (segecularly cardiocally credit card activity), but the children and brilling including an account statement inputs and secking account statement inputs set and brilling including an executive and the children are sent to customers.

Data (in the form of reports) will likely be kept on disk or fast tape for the first 30 to 60 days, then migrated to deep archive as inquiry activity declines. Restoration to high-performance 36-track tape or disk may be required to support year-end reporing and statement processing. Insusrance applications, such as claims processing, are most affected Business processing controlments show high levels of tape use, with tape data sets created to support report generation, report archive and buckups for

port archive and buckups for application recovery, data interchange and application testing.

Outs life and data access patterns are often a function of industry. not by predictable monthly and annual cycles, but by less foreseable natural disasters and seasonal factors such as weather. As a result, extremely high data access rates may be required during times of "disaster."

#### Document management

Document management and imaging, which is emerging as a tape-intensive environment, is hard to classify. Is it an application or a workload?

IDC characterizes document management as an archival workload that supports a variety of applications. It may require near- or long-term archiving and might lend itself to multiple alternative technologies like tape, optical or magnetic disk, depending on data life, data access patterns and cost/performance tradeoffs.

In many document and image management applications, data moves through a hierarchy, from higher performance, higher-cost lower-cost once. Early in the life of a data object, data may be stored on data. But the subsecond response time of disk products comes at a high cost, and once the use of the object is primarily customer service-related, the business value of subsecond response distributions.

In many customer service applications, response times of 30 seconds are acceptable and dramatically more cost-effective. For these applications, high-performance 36track tape combined with highspeed automation is the next logical choice for object storage.

This tape strategy is often used in institutional investor applications with daily report cycles. In such applications, report access frequency diminishes rapidly with time. As a result, data is likely to be kept on disk or high-speed tape for the first few days to months, then migrated to high-capacity, slower tape for deep archive as access freather than the control of the con

quency falls off.

For applications such as credit card image statements and check image processing which appure images on a daily basis, but generate reports on a monthly basis, as better strategy may be to write image data directly to tape until reports are sent to customers, then migrate data to disk when access frequency increases after customer statements go unit.

Document management and imaging can be found in support of business processing applications, such as claims processing in the insurance industry, HR applications (e.g., resume storage and retrieval), or the storing of portfolio information in the brokerage industry.

Each application and industry differs in the data access patterns and required response time to meet expected service levels. A range of technology exists to meet service levels and access patterns. The challenge for users is to match the performance cost with business value.

#### Where does 36-track tape fit?

Factors to consider when choosing a tape technology include average data set size, data access characteristics, drive performance, controller performance, connectivity options, robotic performance, scalability, application and middleware software support, and cost.

ware software support, and cost. As with disk storage, one size won't fit all. IDC believes 36-track tape will continue to dominate high-end data interchange workloads for the foreseeable future. Applications that require high data access frequency, less than a full volume of data per request and access times of less than 30 seconds remain the 36-track sweet spot. especially when combined with high-speed automation and application-specific middleware supporting access at the data set level and not the volume level.

#### About the authors

As DC-9 Research Director, Associated Meangement Steam, plan 7 Kelchrich Meangement Steam, plan 1 Kelchrich Meangement Meangem

information management.

# WORTH THE YEAR 2000 IS CAUSING A PANIC IN SOME CIRCLES. BUT SOME EXPERTS SAY THERE'S NO NEED TO WORRY. HAVE VENDORS AND THE PRESS BLOWN IT UP IN-BY GRAY H. Anthes

RICK FLAGLER, INFORMATION SYSTEMS MAN-AGER at Miniature Precision Béarings Corp., says he originally "freaked out" at his year 2000 problem. He also freaked out over a consulting

TO AN ARMAGEDDON? IT DEPENDS ON YOUR CIRCUMSTANCES.

firm's \$2 million estimate to fix the problem of prise to me of the Kene. N.H. company's divisions. [instead, Flagler's group developed its own methodology and conversion soft-present of the company of

Flagler is one of a growing number of IS managers who are finding that Jan. 1, 2000, wort end the world as they know it. Vendor and press hyperbole notwithstanding, there are ways to approach the problem — and some lucky circumstances — that allow them to sleep nights.

Indeed, some companies and federal agencies are spending millions on pound-foolish

Worth all the fuss?, page 70

## all the fuss?

projects when penny-wise patches might do, says Thomas Gi ammo; the former head of IS at the U.S. Patent and Trademark Office. In many cases, year 2000 projects are driven more by fear than by rigorous analysis of need, he says.

"The alarmists have seized the field, and the burden of proof seems to be on those who say it's not that critical," Giammo says. "I can see where some companies are in trouble, but vendors are really playing on the emotions of companies that are not in

trouble," says Chuck Meehan, director of management information services at Insituform Technologies, Inc. in Memphis, "Some companies are spending huge amounts to change out their total software, which is asinine."

Manes, a director at Forrester.

make him relatively comfortable with

HEAT FROM THE TOP According to Meehan, IS manag are being pressured by CEOs who have gotten scare letters from ven dors, auditors and lawyers. These IS directors have just been best over the head," he says, "but we've been our

own worst enemies because we haven't taken the lead on this." Although it clearly would be foolish to dismiss all year 2000 anest as unfounded, there are organizations that have little to fear from the date change. A company comfortable with the problem probably falls into one or more of the following categories:

\*It started early, worked diligently and is now finished or nearly finished with conversion work. It has replaced its date-challenged legacy systems with client/server apcations that proudly display four-

digit year fields. • Its software is provided by others, and its vendors or outsourcers have

certified that they comply with year alt has a world-class IS shop, with low tutnover, plenty of legacy programmers, good control of source

code, excellent documentation and a healthy budget. ofts systems aren't date-intensive and don't affect daily cash flow.

There is some evidence that the wave of concern over the year 2000

may have crested. A recent report from Forrester Research, Inc. said the problem has become "the most byped issue in the history of IT." The Cambridge, Mass., IS research firm says companies it recently surveyed say they're spending os cents per line of code for year agoo work, more than a third less than the off-cited industry estimate of \$1.50.

ly start on the problem, man commitment and internal staff dedicated to the project, a sound methodclosy and a decision not to convert noncritical reports and screens

Flagler says he expects to be done with year 2000 work by year's end, but he concedes that he's less confident that his vendors and business partners will be ready on time. "The area I'm still uncomfortable about is outside the data center." he says. Wayne Lambert, chief information

officer at Colorado Compensation Insurance in Denver, is another member of the what-me-worry club. "It's not a big issue for us because we rewrote our systems in 1993 to handle the century change," he says. They were overhauled again this year for client/server, and they remain

year accorready, he adds But like Flagler, Lambert admits to \*Companies that have gotten into it having less confidence in his software are starting to say, 'Now that we are vendors and business partners. "We actually fixing code, this isn't quite as are asking for letters certifying they daunting as we thought," says Russ are Yak-compliant or giving a date when they will be so we can test their Flagler says the following factors applications," he says.

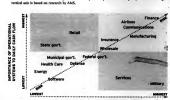
the year 2000 challenge: low IS turnover, good documentation, an ear- Alan Dechert, a software test engineer for the city of Sacramento, Calif., says some organizations are going overboard by making sweeping changes to their systems, especially by changing all two-digit year fields to

four-digit fields. According to Dechert, at least 50% of the year 2000 effort could be avoided by using "windowing" logic. in which programs assume that a two-digit date within a predefined

range belongs to a particular century. Members of the year 2000 mini malist school say it's cheaper and less risky to leave many programs unchanged and just fix them when and if they break. "If I fell askep on the job for the pest two years, the consequences would be minimal," says Dechert, who is writing a year 2000 test plan for Sacramento's Public Works Agency. The agency's key sys-tems are billing applications, and in-voices would be delayed just a day or two if date bugs had to fixed, he says. But Ray Strecker, a vice president and year 2000 specialist at American ement Systems, Inc. (AMS) in New York, says the minimalist philosophy may have troubling legal impli cations. "If you're a firm with a sub stantial balance sheet, you have no

#### Year 2000 risk by industry

The more an organization's systems affect daily cash flows and the greater the effort required to fix the year axoo problem. The higher the risk that the organization will experience nerious financial loss from the date change. For example, on incurance corresport in this generate than a municipal portunents. According to this chart from American Management Systems (AMS), the finance industry is at the higher or ink, while the energy and softwer undoutes are at the best office. The contract of the desiration of the desiration and the state of the desiration and the state of the desiration and the desiration of the desiration and the desiration are at the desiration of the desiration and the desiration of the desiration and the desiration of the desiration and the desiration of the desiration o was determined from estimates by software development experts such as Capers Jones. Positioning on the



RANGE OF ESTIMATED YEAR 2000 REPAIR COSTS

The new "Year 2000 Control ago of the An Assessment Guide an available for the U.S. General Accounting Office for at 1999 222 222

choice but to take the problem very seriously because that's the only action you can defend in court," he

But, Strecker adds, that doesn't mean there are no shortcust. For ample, you might leave unchanged an application that tracks 90-day work orders. It won't sort properly for a three-month period bracketing Jan. 1, 2000, but it will correct itself. "You' just tell prople," Look, manage through it; we are not going to

change R. "he says.
It's impossible to completely validate vendoor 'chines for year 2000 compliance, warse. Loon Kappelman, occhairman of the Society for international conditionation Management's International Year 2000 Working Group. Testing is essential, he says, and it may also be necessary to set up filters to block soncompliant transactions from critical internal systems.

But no matter what you do, you won't know whether systems are compliant until the date change oc-

curs, experts say, "You will never find all the date problems," Maney says. "Of those you do find, you'll never fix them all right. And of the ones you fix, you'll never test them all right."

\*\*TA-LA LAND\*\*
Many of the companies saying the year 2000 is no big deal are "in it-land," especially those that haven't started their work, Kappelman says. For example, he says, a large manufacturing firm recently said it might use lean-de-we applications from Starten and Companies. The says are also account problems. That they are a four-year SAP project," Kappelman says. "They should be doing triage—what

do they have to fix now?

As for those companies that might appear to be explacing legacy systems unnecessarily, there's a method to their mandress, according to Kappelman. Under standard accounting principles, the capital cost of new systems can be amortized over several years, whereas "repairs" to existing

systems must be expensed immediately. Also, it's a way for 15 managers to avoid the suggestion that they're spending bugs sums to remedy past coding

blunders.
Patricia Boyce, a
project leader at
Scottsdale Insurance Co. in ScottsAriz. scoffs at the notion that

dale, Ariz. scoffs at the notion that the problem can be easily solved in the course of noutine maintenance. The company is about 75% through its year 2000 project, which despite the use of an automated tool to convert date fields, has so far taken 77,000 hours from 30 people in 15, plus six outside consultants. The

company employs 100 15 people.
Boyce agrees that windowing can
be a valuable shortcut if used judiciously. The company expanded the
year fields in its data files but left
them unchanged on many of its
1,000 screens, and that may have
saved 10,000 hours of effort, she essaved 10,000 hours of effort, she es-

The sharply divergent views of the year 2000 problem at Scottadale insurance and the city of Sacramento possibly can be explained by how dependent they are on their applications. The immurance company's core systems are online applications that must be available nearly 24, hours a day for processing pokicy and claims information. But Sacramento's billin systems are batch systems that coulbe down for a day or so for repai without catastrophic consequences. All the debate about windowing application triage, automated tool

All the debatic about windowing, application triage, associated tools and so on misses a key point about year 2000, aspit flavor Webner, Chairman pro ten of the Year 2000 Group in Washington. "I don't think if ye controlled year to whom you will be to be a flavor of the Year 2000 of the Year 20

development in general.\*
Indeed, it seems likely that most organizations will get at least a hitle whack on the head from the year 2000 problem. But quite a few companies have found ways to limit their vulnerability. Realistically assessing that vulnerability is not easy,[U]

Anthes is Computerworld's senior editor, special reports. Senior editor Robert L. Scheier also contributed to this sp-





#### YEAR 2000 SCOREBOARD

An occasional series on year 2000 trends, issues and statistics

it's looking uglier, Gartner says

with two years are not received to go, one cancer to beating the year soon problem len't good. Bill Michles, a vice president and research director at Cartaer Group, Inc. in Stanford, Conn., class the following probabilities:

blany empanies work achieve compliance. Account the works, by the and of 1999, 50% of enternally focessed window-critical options and 50% of all option will leave fidual to achieve full year zone compliance in Nieth America, 60% of all systems will be fully on plaint, and another 50% will from achieved Vapontional annial-tability," manelog the company will be for strategome. Convenien takes up a big cleant of information systems leadquist. Vacr 2000 convenient will take up 22% of traditional IS leadquist through 2000.

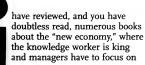
Where the menny will cores from. Furly percent driven year soon presenting will be taken from existing meletranece and enhancement bedgets. The year will come by delaying, cancelling or scaling drown straingle infermention technology projects and abort-term orbits functions. There's not

tog, canceling or acting cover memper or formation intendency projects and about town cirila functions. "Theorie not energin numery to do everything," licities eaps, and the landget litens most fillely to lease not any training, "and furture—a-leave most) applications" and infinitescence upgradus. Even major applications such as mi SAP, Rean and Oracle will come under more scruting.

world is still waiting up to the problem. Interiors companies are well aware of the inv't the case across much of the globs. Latin America still don't believe these really is a problem, McNee says.

into see one contractive more refly in a problem, McHee says. And even in the IA.S., many companies still beven't teles action, according to another Cortear analyst. McHee peels Oct. 6 at a

McNee spoke Oct. 6 at a Carteer Group Symposium content titled "Rethinking the IT Inventment Persiligis." The creat was hold in Originals, Pl



PLAN ALLEN

#### NAGER PUTS A NEW PHILOSOPHY TO WORK



how to hire, retain and motivate scarce resources. Easy to say, hard to do. Here's how one manager seeks to transform

bimself into a "new manager."

Guy Smith is manager of client services at a southern utility. His group of ao information systems staffers is responsible for systems development, operations and the help desk. He's been with the company for ta years and is com-

pleting his MIA.
In Smith's view, "with traditional managers, the big focus was on being tough-minded and maintaining authorny. The difficult managers also tend to be analytic types who co-centrate on performance metrics — the old 'if you can't measure it, you can't manage if yollonophy. Most margin in the 15 profession today still fall into this category." For Smith, 'If not just about the muts and boths of work.

life but also about perceptions. As managers, we have to, first and forement, have relationships with our people. That means being genuinely concerned with how people for about their work, their cervirousment, their home life. A very manager also is concerned less about esercising authority and more about being flexible and heing willing to change." That approach has paid off: There's been no turnover in his group, Others in his company spin style has opened

ans group. Others in an company any air style has opened, communications between Shith and his staff, and between his staff and end users. Management has paid him the sincerest form of flattery. They've increased his responsibilities. How does Smith put this philosophy to work day to day? By following some key principles.

Don't underentimate the impact you have no people. One important factor is to recipinity as low enquintely sensitive employees are about what management is doing. I do so thinking in my car on the very to work, and it's case for me to become precocapied with some issue. If I just walk into the office whothou saring helps, someone it bound to akt 'What's wrong with Coy?' My body language was rending a nigal of envy or concern that ha donking to do with realty —yet that's what people focused on." Show respect for people. "A chronic problem in today's

workplace is missing meetings. How many times have you showed up for a meeting, and the other person wann't there? That sends a message about how important people are in the grand scheme of things, low, if I have to more as meeting. I applogize for the inconvenience. And when the receiving finally foss occur, I don't just launch into the topic but ask everyone how they're doing. It only takes a minute, but sends a message that they're important.

Don't just focus on facts. One team leader had been a caused of insulting a number of people who reported to in. His whole conversation with me was focused on the factual redence of whether or not be had committed the art. Facts were on his side, and he therefore was ready to dismits the situation. I had to help him see that the fixed that people perceived he had done wrong — and that still had to be taken into account."

Don't rely on formal reviews to provide feedback. "Pools of want immediate, individualized feedback on how they're do ing. In IS, we've instituted quarterly reviews to provide on long feedback is but the most important review is past going out on the floor and praising people for what they're doing pight. After all, the true purpose of a performance evaluation is to help the person succeed, not to punish them for fulling to meet your expectations."

That's important in the actual review. It recently had one with an employee what illustoph might be very untillusty in accept criticism. I had a list of enamples revoly to go. But not we were in the review, the individual acknowledged to the flaws but also wanted to bear about the positive aspect. I didn't natur with the positive because it hought she was didn't nature with the positive because it hought she will do not also wanted to the start of the star

Finally, a manager has to constantly evaluate his or her own performance. Pecopariting the limitations in your own performance can make you a better judge of others. As I start work each morning, I consticuly and myself, if is there anything I learned yestersby that indicates I should change what I'm doizing. This may yound idealistic, but it's really a combination of idealism and pragmatiens, and it's soon-thing each of us can do."

Every manager has opportunities to demonstrate that we really do "get it" about showing respect and support for our staff. Like Smith, we don't have to wait for an executive mandate or corporate training session to start dealing with people differently. It status with one conversation, one meeting, one review, Changing ourselves — now that really takes toughness. O

Aller's column deals with people issues that managers face every day but are reluctant to discuss openly. She is a director at Tenex, a management consulting firm in Burlington, Mass:

f.y.i.

Warning: Infrastructure spending ahead

on information technology infrastructure.

Communication that wish to contract as tributed IT resources and data across the enterprise, ment make a "major investment in infrastructure." That investment in infrastructure. "That investment in infrastructure." That investment will be something the 50% more shared to something the 150% more convicuoment," says thank I. Heas, a vice president at Cartiner Coup. Inc. 12 GartnerMeasurement in the contract of the 150% more contract on the 150% more contract on the 150% more contractions.

Hese estimates that fewer than 3% of companies have reached such an advanced level of enterprisesside distributed computing and ays it isn't an appropriate mofor all companios. But 15 organizatiohoping to build data mining and adcolors I organization in send consposition. If organization in send consposition, and a send consposition in the send of the send one of the send of t

#### Nominations, anyone?

nerican Management Systems, Inc. MS) in Pairfaz, Vs., and Carnogle Mein University's Graduate Schoel of Instrial Design in Piterburgh are seeking minations for the eighth Awards for Management of the Systems of the Management of the Systems of the Systems of the Management of the Systems of the System

Vachnology.

The meants recognize senior executives who've made outstanding contributions to their experienties:— and other their industries — through the effective use of IT. Hominations are due Nos. 26 Winners will be selected in March, and

hald in Washington little (20) 227-2246 or by electronic small



#### When we desput or New high capacity drive, common sense distant it should also work with standard distants.



the [competitor's] drive." 18/97

#### Great **By Garrett Michael Hayes** ECAUSE EVEN the smallest company is vulnerable to attack when connected to the Internet, savry managers everywhere are

installing firewalls. The number of firewall products is growing almost as fast as the interest in installing them.

But which firewall do you choose? To help you make that decision, Computerworld asked Client/Server Labs to put sev-eral enterprise-level firewall products through their paces. We chose to fo-

cus on software-based solutions implemented on commonly available hardware. We also looked at a hard-

Three of the packages we tested

— Eagle from Raptor Systems, Inc.;
FireWall-s from Checkpoint Software Technologies, Inc.; and Gauntlet from Trusted Information Systems, Inc. - were run on a Sun Microsysterns, Inc. Ultra a server configured

with two Fast Ethernet cards, 128M bytes of memory, a 2.1G-byte disk drive and a 16-in. color monitor. A fourth package — Sidewinder from Secure Computing Corp. - ran on an Intel Corp.-based Compaq Computer Corp. system, private-labeled by Secure Computing and running a version of BSDI Unix.

To give you a quick idea of our findings, let's just say that we tried ... we really tried to break through each of these products as hard as we could. But they just wouldn't bend under pressure. But there are always good

and not so good features in every product. We discovered the follow-

■Checkpoint's FireWall-1 is highly configurable, but there were errors in the documents

Raptor's Eagle has good real-time monitoring, but its hardware configuration is more complex. Trusted Information's Gauntlet has good operating system integration

but is too centered on the proxy service model. Cisco Systems, Inc.'s PIX is a dedicated single-function machine but has physical access limitations. "Secure's Sidewinder was a snap to

install, but because of a hardware configuration problem, we were un able to test the product any further.

The use of a software-based solution provides flexibility in selecting hardware to host the firewall. Most of the products we tested run on several Unix platforms, so selecting known hardware was less of a problem. Applications designed to run on Findows NT platforms are besin-

ning to emerge, but none appears ready to play at the enterprise level where the combination of strength, robustness and speed is crucial.

Our test and comment consisted of the tested firewall system: two multi-CPU Intel-based servers running Windows NT 4.0 behind the firewall: and 48 PC clients running a mm of Windows NT Workstation 3.51 and NT 4.0 outside the firewall. The client machines were connected to two 24-port roBase-T switched Ethernet bubs. The hubs and one adapter on the firewall system were connected to a 100Base T Ethernet hub. The two servers and the other adapter of the firewall system were connected to a roRase-T Ethernet hub. This somewhat backward arrangement allowed us to simulate a really large \*Box Bad Wolf' buffing and puffing at the

Greenti doore We could have run World Wide Web and file services on the same server that hosted the firewall software, but chose not to. It wouldn't have been possible with the hardware-only solution and wouldn't have provided a good comparison. And we felt it was unrealistic: a server bousing firewall and other services is too vulnerable.

#### BUT TO THE TEXT

Besides the basic tests relating to installing, configuring and adjusting the firewalls, we performed two types of stress tests. In the first, we ammered" the firewalls by placing a simple but heavy traffic load on each firewall, using a modified version of Client/Server Labs' Intra-MARK benchmark (see www.cslinc. com for an explanation of Intra-MARK

In this test, the 48 PC clients were used to generate Hypertext Transfer Protocol (HTTP) traffic against Web servers running on the two servers behind the firewall, with the firewall configured to allow HTTP traffic to and from only one of the servers. A single comp run also was conducted with no fire-

wall in place. The good news is that none of the firewalls broke (or even seriously hiccuped) under the strain of a rack of machines. Each ran 40 virtual chents and had HTTP requests hammered against the system at a full-switched 10 M bit/sec. In fact, in all cases the target NT servers keeled over from the load well before the

firewalls were even puffing hard. For the second mund, we used the Internet Security Scanner (ISS) from Internet Security Systems Inc. as a powerful set of tongs to see what we could pry loose from each of the firewalls. Thus high-inter security probe software was used in two different modes against each

First, it was used in a targeted mode, designed to specifically probe more than too vulnerabilities in a standard packet-filtering firewall. Those vulnerabilities ranged from leaving default passwords in place to relatively obscure Unix system software exploits such as the "ohf" pro gram in a Unix Common Gateway

nterface directory.

Second, it was used in a sort of shotgun" mode, designed to probe for a wider list of some 150 vu bilities in the firewall and the hosts behind it.

One interesting observation emerged from our attempts to inonally cripple a firewall to pro vide fodder for ISS's more obscure tests: All the systems we tested proved remarkably resistant to foolish configurations despite our best

(or worst) intenti it proved to be a somewhat reater challenge than we imag to "accidentally" leave a gaping hole in one of our firewalls Every time we tried to set a firewall up for failure, each package

would warn us fairly stridently not to do what we were attempting.

FAGLE endor: Raptor Systems

er: Waltham, Mass. Web site: www.reptor.com PLATFORM are: Sun's Ultra 2 erating system: Sun Solaris 2.5.1 vice: \$25,000 (unlimited)

basic and functional package that needs just a bit more polish, Eagle appears to be a reasonably good product. With some improvements on the mer-service side (key management, more standard software media, and so on), it could become a strong contende

Our initial try at configuring a security policy failed because of a problem with the network configuration. The other tools we tested set up the network interfaces by using the information provided in the in stallation process. Eagle requ the same information but did noth ing with it. Once we manually set up the interfaces, it was quite easy to define and change security poli

We would have liked to have seen some tools that would help us decide the security policy, though th were several references to books on the subject

It struck us as somewhat pe that this package was available only on digital audio tape when CD-ROM readers are much more common on workstations today. During the installation, it wasn't immediately obvious that we had to submit a license key request form to the vendor. In all, primary installation took to minutes, not including the

time to get the key. Monitoring of the firewall is done in real time through two different logs: a Gateway window and a Logfile window. The Gateway shows ac tive connections and can be used to watch specific connections and even terminate them. The Logfile shows specific events, including all infornative and warning messages. The way window also provides an excellent level of assurance that the

system is functioning Notifications can be triggered by any of the messages mentioned ahove. Those notifications can trigger actions such as playing aud messages, sending electronic mail. sending a page, launching a client program and sending various Simple Network Management Protocol (SNMP) messages. The firewall software starts automatically when the host system boots up. It can be

or's Eagle was easy to me

urned off via the Gateway windo Two manuals covered installation and configuration. Clearly targeted at fairly skilled system or network nistrators, the manuals had several good examples and screen shots showing the installer what he should expect at each significant

point in the process. Eagle seemed fairly limited in the prory services provided; it included only the basic file transfer protocol

(FTP) and Telnet proxies The list of authentication services ey support was a bit broader, It included Security Dynamics, Inc.'s ACE/Server, Cryptocard Corp.'s Cryptocard: Accent Technol Inc.'s SecureNet Key: Belicore's Gateway S/Key password; TACACS+ and Remote Auti tion Dial-in User Service (RADIUS) Simplicity may have its virtues. though, because Eagle showed no

vulnerabilities to the ISS probes when in the firewall-targeted mode The "shotgun" mode revealed three minor and one medium vulnerability: the presence of the rwho daemon, SNMP and traceroute, as well as a problem with predictable TCP/IP packets.

Raptor's customer support called back quickly and gave helpful an swers in easily understood terms

CONTINUED FROM PAGE 75

This was definitely one of the more pleasant experiences we have had with a customer support function. ------

FIREWALL-1 Vendor: Checkpoint

Location: Redwood City, Calif. Web site: www.checkpoint.com DI ATEORIA

Hardwares Sun's Ultra 2 Operating system: Sun's Solaris 2.5.1 Price: \$18,990 (unlimited)

wers were setting policies

verall. Checkpoint's FireWallt is polished and well-organized. The product, sale force, engineering and packaging all lead to a very positive impression. Defining a policy seemed easiest with FireWall-1. Although it may be either, good or bad, depending on your point of view, even "unsafe" rules could be implemented easily. FireWall-1 would warn the administrator (occasionally multiple times).

but would allow the administrator's

judgment to govern Although FireWall r lacked the policy development tools for which we kept wishing, it did at least come with a sample policy file that could be used as a model on which to build

your own policy Changing policies was easy. Selecting network objects, rules, and so on and then choosing "modify" even let you change items on which other parts of the policy depended. Consistency checking was done on

the whole set at once, so recompiline a policy mucht take some time on a very complicated setup The ISS probe found no ulnerabilities in the Fire-Wall-t firewall, and only two very minor vulnerabilities in

the "shotgun" test - the use of SNMP and traceroute within the network One of the nacest features of the installation, which took us about 30 minutes. was that a demonstration li

cense was included in the package. The full license registration process was available via Web browser and already had our key in it. After answering a few registra tion questions, we were given our license. We spent another five minutes installing the optional Motif graphical user interface (GLII) client

Several books of documentation which were written for experienced systems or network administrators, covered the various aspects of the firewall - including each of the GUI clients, installation, architecture and administration - and their remote

connectivity product. An irritating glitch in the documentation cropped up in an example command for extracting the archive from the distribution CD. Unfortunately, the example as shown was wrong. We applied a little Unix knowhow and used the correct command, but it could have tripped up a less ex-

perienced administrator. Checkpoint also supported a limited number of proxy services, including Telnet, FTP, HTTP, RLOGIN and the ability to create custom proxies. Authentication techniques supported include S/Key, SecurID, Operating system passwords, FireWall-1 pass-

words, RADIUS, and AssureNet Pathways Defender. Other than using the company's Web-based system for acquiring our license keys, we didn't need to call Checkpoint for support. ------------

#### GAUNTLET **Vendor:** Trusted Information Systems

Location: Rockville, Md. Web site: www.trs.com PLATFORM Hardware: Sun's Ultra 2

Operating system: Sun's Solans 2.5.1 Price: \$17,000 (250-plus users) he use of Solaris' embedded

software management tools shows a good focus on that market. And the inclusion of a browser-based firewall management tool makes Gauntlet flexible enough to ment serious consideration in any large Solaris shop. Most elements of policy were easy

to define and change, but problems rose when we tried to configure policy elements that were contrary to "good security." A specific problem showed up when we tried to allow unobstructed HTTP traffic from the "world" to more than one Web server. Gauntlet was fairly determined to push us toward using a proxy server for this access, despite repeated ef-

Gauntlet also brings remote mu agement with a Java-enabled Web browser. The firewall must be config ured to allow each remote mana ment machine to connect to a Web server running on the firewall. From a host on an external interface, remote management can be accom-

plished only by using the Gauntlei PC Extender to encrypt the traffic. PC Extender also can be used as an option from the internal interface side to avoid eavesdroppers on your LAN. Once connected, you must authenticate yourself and then you have almost complete control of the firewall configuration.

Our testing with ISS revealed only two minor risks in the targeted firewall test - the presence of Telnet banners and the availability of "finper" on the firewall host with account information being made available. And the shotgun test identified four additional vulnerabilities: rwho. SNMP, traceroute and a TCP predictability problem

On the plus side, the installation uses Solaris' package features, which should make maintenance upgrades. software removal and the like more straightforward for a Solaris administrator. One small glitch occurred when a lengthy update with no prompts caused us to accidentally restart the installation. At 45 minutes, installation and initial configuration of this nackage wasn't unreasonable. but did take the longest of the soft ware packages.

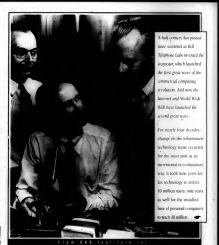
Separate documentation is included for Firewall Installation, Firewall Administration and the installation of a utility called the PC Extender Installation. As with the other packages, all the documentation is written for skilled administrators.

The documentation makes specifimention of most of the fundamental networking security concepts and as such should prompt some thought about what should be included in policy, but no specific recommendations are given

Firewall events are logged using the standard system log command The reporting features seemed some what limited. Although periodic re porting can be configured for several different frequencies and recipients can be notified by E-mail, all reports are E-mailed to the recipients. There didn't appear to be any of the more conhisticated potifications, such as

Gauntlet provided the most im pressive list of preconfigured proxy services, including FTP; multimedia, such as Microsoft's NetShow, Real Networks, Inc.'s RealPlayer, Zing Technology Corp.'s StreamWorks and

SAS Software and the World Wide Web



There may she North While White in less than 24 months following as mendaction to 10 million people, were proming and als king that wigs through coberspace locket wigs through coberspace locket wigs through coberspace locket size that number is something the size that number is something the life in which will be a something the life who has takabily shanged enterprise compound; By the end of 1998 more than fall of corporate queries will be decisioned by Web browsers, according to the EB. There is a special of the property for the property of the control of Particus Seybold Googs in industry consulting from

research from foreransonal Data.

Corp show that, among corporate
users, the Weth bowser has emerged
as the purmary interface for all least
as the purmary interface for all least
nearly 40% of the managers polled
by IDC, based Web browsers as the
purmary interface for updating or
arbatisming processoils developed
applications: This is the clearest
statement yet of box certain fluence
(unchologies) are becoming in the

enterprise," says Frank Gens. IDC

sentor vice president of research.

What's more findings from market



#### SAS/IntrNet<sup>™</sup> Software Unites the Ease of Point-and-Click with the Power of SAS Decision Support Tools

So just what is the driving force behind the enterprise-wide right to Web-enable mission-critical applications? In a polity Computerwork of the Premier 100 loop internet users, the number one reason for Web-enabling applications cost severings.

Much of the cost savings are expected as a result of the Web deployment of applications to

than clients whereby powerful servers from companies such as Sun Microsystems, Inc., dishtitute data and applications on demand to stimmed down desktop devices. This tim client model lease the fullement and the Web as a universal data transport medium. The result is a fair lower cost-per-desktop with an increase in data access to got allowed anyone with a browser

Yet although IT managers have been busily constructing internet-based distributed computing networks, many of the hoped-for benefits have eluded them. That's because it has been difficult, if not impossible, to unde distributed network computing with data analysis and discissor susminor!

Though there are many vendors whose products let users query data with Web browsers, what's been lacking is the critical capability to conduct Web-enabled analysis, exploitation and resolution of data. Limit now

SAS Institute, the company that in 1997 Software Magazine tabolid the "Best Decision Sopport Tools Company," moved that much further ahead recently with the introduction of SAS/Institute onlivers.

#### New Meaning for Web-Enabled Applications

For on-line analytical processing (OLAP) users, SAS/Intrifiet software includes an MDOB Report Viewer and Java Viewer that allow OLAP processing to take place we fire Web browser.

#### Sun-SAS Team Helps National Semiconductor Stay in the Chips

National Semiconductor Corp is determined to benefit from the global movement to network-centric computing - in more ways than one

As a leading chip maker Nanoral Semiconductor is all the variguard of providing enabling technologies for high-speed in ght-volume transfer across the interior. The SC billion company's chips are found in Internot access appliances such as PCs, workstations, personal dig bill assistants and reliable forward.

As a technology user ideal National Semiconductor is explaining the benefits of Internet-based network computing and doing so with the high of a pain of technology allies. Sun Microsystems, this and SAS teaching into

As a long-time user of both Sun operating systems and hardware and of SAG decision support and analytical software. National Semiconductor in 1997 began sometring new III stated appring into the power of SAG final software to deliver repli-time production data to its engineers moving SAG data and reports across the internet.

The SAS/Inthlet bettigot outing at the company's Santa Clava California based research and development site, which supports a bell-dozen manufacturing and test sites on these continents fragments there analyze production data on Sun SPARCastino 20st number the Solaria SZ 100 continents soften above to distinct the Solaria SZ 100 continents severe to develop the Solaria SZ 100 continents severe to develop the Solaria SZ 100 continents severe the SS 100 continents

#### Easy Report Generation

Supporting National Semiconductor's lot tracking application, which monitors standards for a manufacturing process, SAS/fretNet software is helping engineers and developers sidestes what used to be a very laborrates over process.

"An engineer used to gather all the information manually and their generate a report that got distributed just once per day—net in easi-time." Says Sam Hung, principal software engineer. Now SAS/Intribute software lets engineers build reports on demand automatically using real-time data. If furny says. Access to that data is was the Web however.

#### Lending a Transcontinental Hand

Across the country at National Semicondyptor's South Portland. Mane, production sets, Sylded Soung is signing plans to further Web-enable in SAS schause roots, proprish and analyses. As the strik's sensor software regimes. Soung needs to ensure that company production engineers have the nock current production data available. He sees the Web toward memory as the instrates of choice.

Analysis and engineers at the South Portland site use a wanety of hardware, including Sun Ultra Enterprise is as well as a pair of Ultra Enterprise 2s running Solaris 2.5.1.

"I was weared on Sun; that's the same with lots of other people at this company," Soong says "And when it comes to data analysis, SAS software is the industry standard."



#### The Warehouse Meets the Web

With SAS/hinket software, IT managers can deliver the SAS Data Wavehouse — named in 1996, and again in 1997, the "Data Warehousing Product of the Year" by Datamahon magazine — directly to the Web

SAShinhik software's Warehouse Viewer lies, users access wavehouse date deniefly through he Web browner over without having JAS software installed on their clients. Available today on MVS, PC and UNIC' platforms, including the powerful line of servers from Dair Mediosysferics. SAShinhired software mobiles sharing of dair, preparts and analysis or only with other JAS users but also with non-SAS users who are using a standard Web boxners to access the dair.

To ease warehouse reingation, Warehouse Viewer offers a choice of these interfaces. Overclery lists users see and then select warehouse subjects and access data. Search lets users search intermal list of description, and Advancetration less administrators duise through the structure of the warehouse, focusing on the metadata that delines if

#### Making Your Web Browser a Universal Interface

SAS/mithlet software cuts for the heart of the rapidly rising cost of desklap computing. This cost has signoclated in recent years as IS managers deployed hundreds of applications and tools to thousands of desklaps in addition to mantaining and updating those deskitos on an armust basis.

"With SAS/Intelled software, you build your SAS application once and then disliver it to all the clients right away," noted Chip Kelly, SAS Institutes program manager for Web realthermet. "Then the end user just postand clicks with a very familiar interface, the Web browser Out Settle autouses the interface requirement to any browser its fittel simple." San hay, one-time SUS colleres are and sells adopted in SUS himfels between finds other foreseasing and theretime claiming the The primosit others entires at Netword Semiconaccian Cultu, notes that a ring SUS intelles (software, the applications and other can be assigned that or programming recommendations) for some services of the control of long SUS-firefiller software, researchers at Netword Semiconaccian processing multi-media regularize and regords to market the distance of semiconductor production. They formerly selled on data that weart current.

The Vieto maching of SVS applications through SVS Intrinder orbinance can also tree direct benefits to your colorines and partners as well as in internal uses. Second the insuremant coloristic on SVS data through standard with bit hampers, your supplies—for transple—and hask your meretrory index and better artislophic restoration, excellent Avid if your company is supplying materials to this construction, those consistency of supplies the supplies that the supplies the supplies that the supplies that the supplies that the supplies the supplies that the supplies that the supplies that the supplies the supplies that th

"What we've done is allowed for the distribution of SAS applications, data and reports to a very wide audience," notes Kelly. "Wh've made our buck-end data enalyses and exploitation tools available to everyone with Web access."

To learn more about SAS/IntrNet software, and to download free SAS Web Publishing Tools, visit SAS Institute at www.sas.com/web





Sun Microsystems, Inc.

-------

VDOnet Corp.'s VDOLive, SNMP, time to be tested. Technical sup news and several others. It also has a facility for building custom proxies.

tractury for busining custom protest. The authentication services include Access Key II, Cryptocard RB-I, Awent Technologies, Inc.'s Defender Security Server, Vasco Data Security, Inc.'s Digipass, Secure Computing's Safe-Word Authentication Server, SecureNet Key, SecuriD, S/Key and Resusable passwords (build-inc.)

Calls to Trusted Information's support line were returned within a few hours, and the sales and technical support personnel were consistently friendly and provided rehable antwers quickly.

#### SIDEWINDER

wareh

ndor: Secure Computing cation: Roseville, Minn.

Web site: www.securecomputing.com PLATFORM

Hardware: Compaq Prosignia Operating system: BSDI Unix Price: \$25,000 (\$20,000 for unlimited software license and \$5,000 for hard-

t took 20 minutes to unpack and set up the hardware (preloaded with BSDI Unix and the Sidewinder software), but Secure Computing won the software time-toinstall competition with a time of

personnel were friendly and helpful as possible considering the lack of tools available in the package we received. The attempt to swap the interfaces made the system unable to boot, and thus unable to be tested. Although the Installation and Ad-

faces made the system unable to boot, and thus unable to be tested. Although the Installation and Administration guides couldn't be verified against actual operation, the documentation was generally accurate and appropriate.

References to various standards were a better than-average starting point for helping decide on security policy. Proxy services listed include America Online. FTP. Gopher, HTTP, POP, RealAudio, Telnet, Wide Area Information System, WHOIS, X 500. X Windows System and a custom proxy capability.

The list of authentication services include Standard password, LOCKout DES, LOCKout Fortezza, SafeWord, SecureNet Key and SecurID.

A LOOK AT A HARDWARE FIREWALL We felt that Cisco's hards:

We felt that Cisco's hardware-based firewall system, because of its popularity, deserved a comparative look while we were considering software firewalls.

#### DIV.

Vendor: Cisco Location: San Jose, Calif. Web site: www.cisco.com PLATFORM Hardware: Proprietary

Operating system: Cisco IOS

Prior: \$9,000 for 133-MHz unit tested

Simple, fast and resilient best summed up our experience with the PIX flewall. It comes preintailed with most of its 'manarie' in the hardware, making for a simple 10-minute installation process. Using a standard serial terminal, we only had to set internal and an emoter configuration password, and a mable remote configuration password, and enable remote configuration.

from a Windows NT server.

But the serial port also provided

Great walls, page 78

Personal Streets, at your service.

PC Secure 1.0 Software Builders International Atlanta

www.netzip.com (800) 432-0085; (770) 541-2729 \$60, by download only

By floor Grounting
If you aren't protected by the corp
rate firmed! — pushage you work:
home and telecommute or get or

rete firmed! — paskape you work at brone and feliconomies or get on fine with your laptop as you trave — your exactions and the date on I are at visit whenever you've connected.

You can autoinsten that state sald

We can attaining that take with the help of a new formall category have an passenal flowerite, which let a some protect one machine or angle verigeorge convention to the letternst with only a medium leaterest it and the land gaps. Harvi's a leak at one much prodcel, and an include the Conven-

— to provide perspective on the category of protection.

My quick take? I Med the proced, it tested very exceeds, and the orice is less. The descentia: The arcenter wasning her could be seen

rice is low. The downside: The acner vectoing her could be necelable. (The majo review in this action focuses on Unix assurption reveals.)

NOW IT WORKS

PC Secure's software connects at the Issuest-Israel IP protects there is, down at the Wictiocks Israel there's' no easy gating around where it heats into from the levide, and there's no documented way

Both inbound and outboard conuclean requests are checkagainst an easy-to-configure porelations table that defines necesby application, searce/target to

drate and protectl type.
That late sters disallow FTP is bound requests from any address except year satellite office, for a steps, or publish towarps common tions to apacific office, such a games or persography office or palage year ratio competitor's uplesSystems administrators who use this product in a small surfagings entiting also can paramord-positiot is uncleasing and any time, lecting in the current interest privilege entiting and own girling thread account when appropriate. The interface is simple, giving a view of year protection onlung appropriate, indicate by application or positions. A studyed but of

C Secure is one of several firewall product individual seems and small workgroup

to allow, to deep or to query new for permission. This status to added to the permanent acdetabases. That provides for in-

credible granularity of occase.

A new version of the code is due in December. The vender coys that version will have a substantially improved interface check-full of resistant states as an information.

Hopefully, the installation are animal restinat will be among the areas fixed — I ended up with a treated disk when uninstalling the authorse because 1 had installed other soltman first.

The only dromback to operation more was that when the access warning beer paper up, it's hidde behind a full-across application That would be a welcome fir in the near variation. O

Greenberg is a freedomes revision M.V.

Cisco's PIX is an example of a hardware-

#### zero minutes. Unfortunately, that 20 minutes was also the shortest time to

failure. A hardware configuration problem prevented any testing. The system we received was configured with two zoBase T Ethernet

cards. To participate in our load test and the ISS testing, we had to replace one 108ase-T card with a to/ 1008ase-T card, which also was included. As it turned out, the necessary drivers weren't included with the system and couldn't be delivered in

#### Great Walls of Fire ST Server on the same network as the PIX unit al-

CONTINUES FROM PAGE 27

what our tester saw as a significant drawback. With the serial poet on the back of the rack-mounted PIX, access could be difficult in the event of a setious system problem. A retwork crisis isn't the time to struggle with connecting a terminal to crucial equipment. Though the firewall is on Cisco's peoprietary hardware, a management tool running on a Windows

lows the rest of the setup to be done with any Javaenabled browser. All logging is done to the same NT server. Defining a policy was quite easy

Defining a policy was quite easy with the 'Web-based management with the 'Web-based management work of the policy, however, was less straightforward, Althought it was simple to add to a policy, it could against real-world be a significant problem to motify any sort of realm unks. In our agentments, modifying any part of the policy appeared to require removing all parts of the policy. 155 for this, com-

that depended on it. Our ISS tests found no vulnerabilities in the targeted firewall tests, and only the familiar SNMP and tracerouse vulnerabilities in the "shotgun" test.

One of the challenges in selecting the firewall you use to secure information assets is to assure youself that the system is in fact protection against real-world attacks. To achieve any sort of realism and consistency in such testing, automated testing tools are mandatory. We selected the 15S for this comparison. Used as a

standard by many government agenciae and professional security analysts, the ISS tool allows for repeated, high-speed testing of literally humdreds of well-known and obscure security valnetabilities on firewall and bott systems. We performed in minuses a serious analysis of firewal retiability, which would have been just impractical but realstically impossible if attempted manually. O

Hayes is systems control manager at Client/Server Labs, a primary test lab partner of Computerworld. He can be reached at gissyes@cslinc.com.

#### Up to NCSA snuff

The National Computer Security Association has certified the following firewall products for 1997. For updates, visit NCSA's Web site at www.nsca.com.

yCom Corp. Santa Clara, Calif www.ycom.com • NETBuilder Router 9.1



t branch offices and small companies

(a subsidiary of Digital
Equipment Corp.)
Littleton, Mass
http://allavista.software.digital.co
> AltaVista (Unix platform)

ANS
(an America Online, linc. company)
Reston, Va.

www.ams.net

> ANS (inc. company)
Reston, Va.

www.ams.net

> ANS (interfack)

Ascend Communications, Inc. Alameda, Calif. www.ascend.com

Pipeline Router, Version 4.6C

Checkpoint Software
Technologies, Inc.
Redwood Cty, Calif.

unus.checkpoint.com

Checkpoint FireWall-1

Checkpoint FireWall-1 NT

Ciaco Systems, Inc.

San Jose, Calif.

www.circo.com
PIX firewall
Centri firewall, Version 3.1
Cyberguard Corp.
Fort Lauderdale, Fla.
swww.cyberguardcorp.com
> CyberGuard Firewall,

Version 2.2.3

Clobal Tachnology Associates, In Orlando, Fla.

sww.gla.com

> GFX Internet
FirewallSystem, Version 2.5

> GNAT Box 2.0.1

BM tiento

Atlanta
usus.ibm.com/security/
+ Firewall, Version 3.1
+ Firewall for AS/400,
Version 4, Releases

Internet Devices, Inc. Sunnyvale, Calif. Junes internet devices.com Livermore Software Laboratorio International

Portus, Version 2
Milkyway Networks, In

Santa Clara, Calif. www.miltywey.com • Black Hole

> (their link is broken on the NCSA page...)
>
> • Guardian 2.0
>
> Network-1 Software
>
> 8. Technology, Inc.

New York

JOHN Technology Corp

Cambridge, Mass.

JOHN Technology Corp

Cambridge, Mass.

JOHN Technology Corp

Cambridge, Mass.

+ON Guard

OpenROUTE Networks, Inc.
Westboro, Mass.

westboro, Mass. usus openrouse.com ►GT Secure 60 ►GT Secure 70

Radguard, Inc. Mahwah, N.J. www.radguard.com PyroWall 1.1 CryptoWall 1.0

Raptor Systems, Inc.

Waltham, Mass

► Eagle 4.0 (Solaris)
► Eagle NT
► Raptor Eagle; Enterpri
Firewall 4.0 for HP-UX

Secure Computing Corp.
Roseville, Minn.
Insus securecomputing com
P BorderWare V4.0
P Sidewinder 3.0

Secure Computing Firewall fo NT a Plus Sun Microsystems, Inc. Palo Alto, Calif.

SunScreen SPF-100 1.0

Technologic, Inc.
Atlanta

www.slogic.com

usted information Systems lenwood, Md. www.tis.com

sh Software, Inc. sphell, Calif. sukiohsoft.com

Watchguard Technologies, inc Scottle www.westchguard.com

# ONE KNOWS NETWORKS LIKE

OPEN systems. Open standards. Open doors of interchange anywhere in the world.

That is the promise of networking.

And that is the promise Novelli is delivering.

Novell's innovative enabling technologies helped create the networking revolution of yesterday

and are now helping cotalyze the business revolution of tomorrow.

With millions of users around the world, Novell server operpting systems truly power the network.

The latest version of Intranst/Vare" software, for example, offers superior management and control of increasingly complex networks, including the Internet and corporate intranets, delivering exceptional value at a low cost of ownership.

Intrans/More is supported by Novell Directory Services," the inclustry's leading cross-platform directory service, providing single-source administration of all parts of the computing environment,

including UND" and NT servers, minis and mainframes.

NDS" also closely integrates with Novell BorderManager" technology, Novell's newest Internet product.



BorderManager is the industry's first integrated family of directory-based network services

that manages, secures and accelerates user access to information at every network border—

the point where any two networks meet. NDS and BorderManager are object oriented network services that can be integrated under Novell's Network Object Services for Java!" This unique set of Java initiatives allows developers to fully build robust and scalable server-based solutions for the Internet a open public API specifications for Java applications for global computing.

And GroupWise\* 5.2 leverages the ubiquity of the internet to deliver expanded e-mail capabilities such as calendaring and scheduling, document management, workflow, imaging, threaded discussions and status tracking—

for any user with any browser on any server.

Networks will continue to get bigger, faster and more complex. But they're still just networks. And no one knows networks like Novell.

We have the tools, the technology and the talent to make the networking future a practical reality taday. Internet, intranet, extranet—arrynet—the name of the network is Novell.



Envision a network ready,

#### remotely manageable,

dual Pentium II processor-based server that can diagnose each and every client. And tell you who's going to call in sick.

Acer introduces the award-winning AcerAltos 9100. Enterprise networks are growing. Virtual and mobile offices are commonplace. To gain a competitive edge, the need for anytime, anywhere access to corporate information is vital. The AcerAltos" 9100, with dual Intel® Pentium® II processors, ensures network availability with tools like Acer Advanced Server Manager" Pro and Remote Diagnostic Manager". Resulting in higher productivity, connectivity, and uptime. The bottom line - a powerful server solution with manageability, expandability, compatibility, scalability, and network security. But, perhaps best of all, it'll keep your clients happy and healthy. ACER





#### In Depth

Macro viruses, Boot-sector viruses. Clever boys who join the "elite" by wiping out your hard drive. And on deck, ActiveX. For the labs that battle destructive code, business is (unfortunately) booming. We invited ourselves to spend a few days with . . .

## IRUS FIGHTE

By Steve Ulfelder

#### The server is flat black. Perfect.

But it ought to be named Deathstar, or Blackhole, or maybe Pandora's Box. And it ought to be etched with cocky graffiti like a World

A virus is a ghost in he machine Alex Haddox Symantec (right)

War II bomb: Rewrite THIS, punk! From LA with Instead it's just labeled "AVLo," and like everything else in the lab, it's neat as a pin. And it contains every virus the Symantec Anti-

Virus Research Center (SARC) has ever captured. Welcome to the front lines of the fight

against computer viruses.

SARC and Network Associates, Inc.'s Anti-Virus Emergency Response Team, or AVERT, are two of the antivirus laboratories founded by vendors. (Network Associates was formed last month when McAfee Associates, Inc. merged with Network General Corp.) Part promotional tool, part public service, the labora-tories find, fix and document malicious code. SARC and AVERT team members swear they would like nothing better than to put themselves out of business. But recent visits to both laboratories indicate that they needn't undate their resumes any time soon.

As recently as two years ago, most viruses were created by an underground network of highly skilled show-offs. But those traditional viruses have largely been supplanted by macro viruses, written in Microsoft Corp.'s Visual-Basic — everyman's programming language ened the doors to everyman's virus. There are plenty of bulletin boards with

friendly interfaces where you can create a virus by dragging and dropping icons. Choose a payload. Click. Choose a delivery method. Click Will that be polymorphous today, sir? Click. It's no wonder macro viruses now account for 80% of all viruses. The ease of creation leads to more vir

than ever - more than 1,300 macro viruses exist today, up from 40 one year ago. That means vendors update their antivirus software more frequently, which means you need to make sure your users have the latest protection. Businesses don't like to talk about

viruses, but. A large East Coast financial insti thought it had been infected and shut down there floors of its offices. The institution was a Symantec Corp. client. Carey Nachenberg, a SARC engineer, got paged, hopped a red-eye and spent all

day combing through 150 PCs by hand. Nachenberg found nothing. The virus' was a false alarm reported by company employees. The company lost at least \$2.3 million. And that's a very Symantec and other virus fighters who quested anonymity

Most "viruses," like that fire stitution's false alarm, aren't viruses at all. Alex Haddox, a Symantec pe manager, says 60% of the reports SARC receives are false alarms. Many end users cry "Virus!" when they lose a file, when an application locks up or when their monitor flickers strangely

Network Associates' new corporate offices are pure beige hulking Silicon Valley all the way, but AVERT itself has panache. To enter the locked-down lab, which operates on a \$6 million-per-year budget, you need not only your company-issued badge, but a password

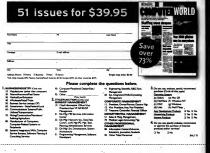
Inside, somebody took pains to establish a The virus fighters, page 85







You have the right to remain calm







#### BUSINESS REPLY MAIL FIRST-CLASS MAIL PERMIT NO 558 MARION, OH

POSTAGE WILL BE PAID BY ADDRESSEE

\*\*\*\*\*\*\*\*\*\*

#### COMPUTERWORLD

P O BOX 2044 MARION OHIO 43306-4144







#### BUSINESS REPLY MAIL

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

P O BOX 2044 MARION OHIO 43306-4144



## FIGHTERS

CONTINUED FROM PAGE 83





SARC's Los Ange les location makes It a favorite stop for TV location scouts, who usually go eway

War Room feeling. A backlit world map spothshts all AVERT locations. A series of clocks display the time in Santa Clara, Calif., Paris, Sao Paolo, Brazil, and Tokyo. People wear white lab coats in this room. Unselfconsciously

AVERT is in Santa Clara, Although Symantec's corporate home is next door in Cupertino, SARC (which is budgeted at \$4 million per year) is 390 miles and a lifestyle or two south in Santa Monica It's tempting to draw a Silicon-Valley's-

not-big-enough-for-the-both-of-us image from that distance, because to a disinterested observer. Network Associates and Symantec appear to hate each other's guts. Suits, countersuits and dueling press releases fly back and forth. It's not a collegial rivalry.

IN OTHER WORDS While waiting for an elevator, Symantec engineers search for a polite way to explain certain virus "payloads" — the mes-sages and images that appear to inform

users they've been hit. Payloads may be patriotic (flags from Italy and Eastern European nations are common) menacing (skull-and-crossnes stuff) or amusing (there's a virus

called Cussout that swears like a stevedore at the bewildered victim). Very often, though, payloads are how to put it ... "phallo-centric," the SARC engineers finally blush. Virus writ-

ers, it turns out, have dirty minds. Virus writers tend to be 14- to 24-yearold males who seek nothing more than to become elite virus writers. Henri Delger, moderator for Prodigy's Virus Help ommunity, says, "For the immature, the challenge is the big thing. 'Can it be

done?' becomes 'I'm gonna try that!' and, if successful, Woul I did it!" \* "Sometimes they actually embed chatty essages to each other within a virus Haddox says. "They know the message will be read by their buddies." He recall virus code in which the writers discussed

girlfriend problems ("Let her go, man, she's not worth it"). You become a star in the virus underground by writing clever viruses that are widely propagated. You write them, save

them, trade them with your friends. That's about all there is to it. AVERT and SARC ave developed a pretty ophisticated profile of seir quarry, but does nat cloak-and-dagger stuff help fix viruses

"Code's code."

vendor-sponsore ries aren't univer beloved. Several rus information sysworkers contacted electronic mail for is story question the worker at a large compomity, says be found ork Associates \*very ppy" with samples and And er, when asked about SARC and AVERT vines edictions, says, \*Hop-.. you're listening to their marketing peo-

Those slings and ar-

rows don't surprise virus fighters, who often are accused of writing malicious code themselves to drum up business. "That hurts," Had dox says.

Public opinion aside, the job of antivirus laboratories won't get easier any time soon. It's not hard to write a macro virus. E-mail has emerged as the virus delivery vehicle of choice, accelerating

the spread of maliciou code [CW, Sept. 29]. And Microsoft's ActiveX is seen by some as the next virus fromtier. ActiveX viruses, or

"destructive applets." can raise havoc on a deckton

DAY IN THE LIFE Shannon Peters Talbott, Network Associ ates' manager of advanced research, has 15 people in Santa Clara and 70 others

ound the world working for her. On this typical morning, Talbott con-fers as an AVERT coordinator looks over new submissions and does an initial scan to weed out the obvious nonviruses. She then routes the true viruses to specialists - in polymorphous or boot-sector virus

es, for example.

The specialists identify the virus, name and categorize it if it's a new strain, and create a fix. Surprisingly, that's usu-ally the easy part of the job. Most newly discovered viruses are slight variations on known ones, so unless a virus is polymorphic (which means it changes form and is thus devilishly tricky to lassoj, the repair work often takes just

Testing, then, becomes the bottleneck Each fix must be tested on various hard ware and software setups. That can take four to eight hours.

Still, both SARC and AVERT turn around most nonpolymorphic virus réports in 24 hours.

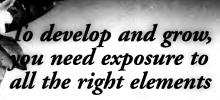
When asked what it takes to be a good virus-hunter, Talbott says, "They need an assembly language background. It helps if they've done low-level bug testing." She smiles. "And they need to work

Ulfelder is sensor editor of Computer-world's In Depth section. His Internet address is stove\_ulfelder@cuccom.











## These positions & more are waiting for you

data analyst • NT consultant • technical specialist • project leader • NT specialist • programmer analyst • MS certified trainer · project manager - year 2000 · database administrator . unix systems administrator . data analyst . NT consultant • technical specialist • project leader • NT specialist • programmer analyst . MS certified trainer . project manager vear 2000 • database administrator • unix systems administrator • data analyst • NT consultant • technical specialist • project leader . NT specialist . programmer analyst . MS certified trainer • project manager - year 2000 • database administrator • unix systems administrator • data analyst • NT consultant • technical specialist • project leader • NT specialist • programmer analyst • MS certified trainer • project manager - year 2000 • database administrator • unix systems administrator • data analyst • NT consultant • technical specialist • project leader • NT specialist • programmer analyst • MS certified trainer • project manager - year 2000 • database administrator • unix systems administrator • data analyst • NT consultant • technical specialist • project leader • NT specialist • programmer analyst • MS certified trainer • project manager - year 2000 • database administrator • unix systems administrator • data analyst • NT consultant • technical specialist • project leader • NT specialist • programmer analyst • MS certified trainer • project manager - year 2000 • database administrator • unix systems administrator • data analyst



#### **IT Careers**

## The new face of DIVERSITY

More minorities are seeking opportunities in the IS field. But the lack of mentors and role models is still holding many back

By Melanie Menagh

"DIVERSITY IS GOOD BUSINESS."
"WE WANT A VARIETY OF
PERSPECTIVES AT THE TABLE."
"WE DON'T LOOK AT ETHNICITY,
WE LOOK AT SKILLS."

To hear companies talk, the 1990s are a golden age for minorities in information systems. Firms crow about their cultural awareness seminars, sensitivity training programs and minority recruiting policies.

It only makes sense: Desperate for competent staff, the hot issue at IS shops is seeking out new pipelines for personnel.

In theory, if you've got the right skills set, you get the job, regardless of your racial or cultural admixture. That's the theory. But what about the reality?

Just because there's a scarcity of good people, has that changed entrenched attitudes about ethnic groups traditionally underrepresented in 187 bo companies whose diversity policies look good on paper follow through with equitable salaries and opportunities? These days, what can an African-American man or an Hispanic woman do to improve his or her career trajectory?

#### NEEDED URGENTLY: MENTORS AND ROLE MODELS

Despite the best intentions of many companies and managers, diversity goals aren't always borne out in the real-life work experiences of minority IS staffers, according to Jacouellus Benson, IS director of administration at Detoit Edison.

There is a trust gap, a respect gap, a personality gap, Benson says.

People not coming from the minority experience supretimes don't have the same perspective. They think it's just a matter of doing good work, they don't see some of the soldinosal problems that their [norm/thie] coworkers have. 'And, she says, 'I do believe there is a glass ceiling.' She inn't alone in her feelings. 'On paper, everyone loves you,' says

an African-American senior manager at an 1S consulting firm in the Dallas/Fort Worth area, who preferred not he identified by name. "On paper, it looks like this (company) is home; you get there, and it is not, the manager asy." This tasse is whether the diversity policies are implemented all the way down the line. Does the company follow through! Do those in decision-making positions make sure policies are enforced? The had good experiences and load experiences.

Part of the problem: "Corporations all have good policies. Many have extensive diversity programs, but if there's a lack of enforcement of

those principles, the effort is wasted." says the anonymous IS manager. "Often, it's not deliberate, but some companies just don't follow through."

Another problem is a lack of minority peers, role models and mentor in IS. Th most cases, there are no more than four or five people of color in an IS department of several hundred. Suppr. the manager from Texas. And although some companies may report a high minority rate, many are not talking about blacks; it might be people from India. for instance. "He says the black community is especially underrepresented in information technology, at the higher levels.

somation technology, at the nugner seven:
"It's difficult to find mentions who can help minorties coming up. It's a strong disadvantage." Benson
asy, "In the last five year, my CliO, who is white, became my mention. It's been a tremendous boott: my career has really laken off. He's been able to steer untion what I want to do and show me what he thinks I
should be doing.

#### PERFORMANCE ANXIETY

Some of the difficulties minority IS professionals experience come from unternal factors. "Confidence is an enormous problem," says Byron Guiterrez, a member of the senior technical staff at Oracle Corp.'s Tools Division in Redwood Shores, Calif. He has tutored gang members in San Dieses and East Los Anueles.

The most important thing was giving them confidence, letting them know that they could work with computers. Goisterrez says. For so long, they'd been told they couldn't do that. When they calize they can succeed in 15, then they puth. In fact, once they get there, they overperform because they still feel they're not up to the position."

It's a problem not limited to Hispanic IS staffers as from you're one of the few black people on staff, your visibility is exceedingly high, no your mistakes are immediately known, but your successes may or may not be. 'asys the manager from Texas.' Being in the spotlight all the time can cause you to go to extreme to miske-sure you're extremely technically competent.

#### NO LONGER SUCH

"No doubt about it, the numbers of African Americans in 1S are increasing. Companies are salivating after our students," says Harold Gray, senior director of the Center for Professional Development at Howard Unaversity's School of Business, a historically African-

American institution in Washington.

At Howard, grashastes with a technology focus have become very hot commodities indeed. "Out of our senior class, 90% are getting job offers from companies like IBM, Microsoft, AT&T, Kraft Foods. EDS — the list

goes on," Gray says.

Howard alums are getting impressive salaries to boot: Undergrads are looking at the high \$30s, with

\$2,000 signing bonuses; those with MBAs are pulling down offers of \$70,000, plus \$16,000 signing bonuses and scholarship bucks to finish their degrees.

"The technical world is creating changing, sucking up taken because of demand and rewards. Our 15 department is extremely demore, is asp long: Figuresto, senior vice president of human resources at laz Claimorre, Inc. in New York. There is a common language in 15. The democratic nature of technology provides an output of the contraction of the contracti

#### HOLDING ON TO YOUR ASSETS

MOLEONE ON TO YOUR ASSETTS

Companies are extrambling to keep their minority IS stiffers happy and on the payroll. "Retaining people has become absolutely critical. It's an issue of creativity and innovation," suys Je Annas McCardie, diversity institution manager at Silnon Graphice, In (5GC) in Mountain View, Callif "We don't put people in bosses according to their background. You can be as

cording to their background. You can be as creative as possible [only] when you are allowed to be an individual."

SGI has introduced many programs to encourage minority porticipation. For enample, it has affinity groups, such as Visionarion, whose members organize the firsts for Hispanic Heritage Month, arrange for speakers and work on recruiting Latino college grads. 'Retaining a diverse workforce is a really big issue,' Figuardo says. 'Anyone who has the skills can always finds occorone who's co-

the state can away man solution of the state of the state

an environment that says, You're important. We want you. We understand you. We're looking for ways to leverage your intellectual capital."
"People have to feel that they're welcome, that they have a future, that they're not going to bit a glass ceil-

#### ing or a brick wall, Figuredo says. OPPORTUNITY UNBOUND

Despite the extra obstacles, many members of minority groups have found the future in 15. "The sky's the limit. The culture, the environment

don't inhibit propie. If you have a goal and the ability, it's possible. Accomplaining it is your own responsibility. \*asy Julie Yancey, managing director of development services at Federal Expects Cops, in Memphis. Yeste Reynolds, IT manager at Supply Commerce to Bell Computer Corp, in Assain, Texas, says her Hispanic background doesn't bidd her back. "It starried out being an all-athie-made field, but the industry has

being an all-white-made field, but the industry has matured. They're more receptive to having minorities on staff. If you perform well in this industry, it's a fair shake; wage gape don't esist here," she says. Seynolds tries to bring a special sensitivity to the table. 'When you're interviewing, you become intumt on bridging the gap of cultural difference. You try a little bit harder to understand where the person is coming from, what their frame of reference might be," she

As part of the diversity program at Dell, each new hire has a sponsor. Reynolds asys. "For minority memhers, the sponsor helps them adjust to the cutrionment. If they're from another culture, they take extacze, show down to make that person fiel comfortable, and give them the tools they need to feel this they're a part of something they're building. "the sars."

#### For minority members in 15, it's especially crucial to look carefully at prospective employers, not just the bottom line. Problems exist, but those who pick the right

SIZING UP A POTENTIAL EMPLOYER

shop will find doors swinging open.

"I interned at Ford and had a very good social experi-

	All bachelor's degrees	Bachelor's degrees in	Percentage who choose
	awarded	computer science	computer science
White	947.309	20,503	2.2%
Asian	51.463	3,592	7.0%
Black	77,872	2,773	3.6%
Hispanic	45.376	1,311	2.9%
Native American	5.671	97	1.7%

ence as well as work experience," tays Cynthia Gumbs, a systems analyst at Ford Motor Credit Co. in Dearborn, Mich., and a recent Howard graduate. "Money definite ly is not the driving force in which company to choose.

took at your opportunities to grow."

Gumbs says the company's nontrehisology programs are an important part of the total suckage.

'I have a partner, an African-American woman that I'm paired with. So if I have a problem I don't want to discuss with my boss, I have lauch with her. They made me feel at home here, as opposed to going someplace and being the only black face in the group."

Guterrez coursels people to be more aggressive about managing their careers. Members of misorities don't more around as much as the industry average." he says. "Some of it has to do with security. Even when they are seriously underpaid, they don't shop around. They don't want to risk change when they're doing beter than they thought they would."

her than they thought they would.
"You may be discriminated against, but you have to learn to live with it," says the manager from Tens. "You still fare better in 15 than anywhere." His advoice "Become a menior. It teaches you as much as it teaches. It helps you focus your career and understand what you have done, where you have been successful or not and why." If

at the high 500, with bridging the gup of cultural difference. You try a little Monagh is a findance writer in Maple Corner, Vt.

THE GROWING RANKS OF IS AND PERCENTAGE OF IS MINORITIES

	12					STRAFF	100		
job Title	1024	1096	%.change	1054	1006	% change	1084	1006	%.chang
COMPUTER SYSTEMS ANALYSTS	310,000	1,093,00 -	+953%	5-3	7.3	+96%	1.8	2.5	+39%
COMPUTER LEAD OPERATORS	140,000	209,000	+49%	5-3	ã.o	+51%	3-3	34	.43%
COMPUTER PROGRAMMERS	507,000	561,000	+11%	5-3	5-3	no change	2.7	47	+74%
COMPUTER OPERATORS	713,000	398,000	-55%	12.7	. 13-3	+5%	61	7-9	+30%

Company of the second of the s

SOCYMANIE SEMERATED recused Analysis, deep 3 proused Analysis, deep 3 proused Analysis, deep 3 proused Analysis, deep 3 proused Color of the Color

UKS pallerine, French of the Color

UKS pallerine, french of the

UKS pallerine, french of

UK

lateliase

The World's #1 Software Event is back in Chicago!

DO





1975 North Park Piace Atlante, GA 30339 800-599-9550 770-955-1714 FAX: 770-937-0423 e-mail: slc11@aol.com EOE, MEMBER NACCB

STRUCTURED LOGIC COMPANY, INC.

SAP NATIONAL

# 6+mos. Exp. v 3.1A B. or higher

Markette COROL, OCR DEZ.



(946

spearhead

#### REGIONAL SCOPE North and Central Florida

Looking for better IS opportunities and lifestyles? Many relocatees are finding both in Florida.

In Jacksonville, Orlando and Tampa, leading-edge client/server and mainframe skills are all in high demand. Consulting positions also are rampant in all three markets. Computerworld spoke with three IS transplants for their take on each city

#### **By Leslie Goff**

#### **JACKSONVILLE**

ANTHONY BIELOBOCKIE Independent consultant Relocated from: New York Moving date: November 1996

Anthony Bielobockie had no intention of moving to Florida. He even told the recruiter he wouldn't consider the job she

had in mind for him. He accepted the initial interview just to be polite. He moved not lone after. "They really won me over with the proj-oct," Bielobockie says, "I left New York

to follow better work." The project was a three-tier client/ server database application at mortgage company HomeSide Lending, Inc. Bielobockie, 29, signed on 25 an inde

pendent consultant with a long-term In New York, he says, he was a "grunt," a contract programmer who coded a call center application for Nynex Corp. In Florida, he is the senior techapplication, which ultimately will autohe muses New York's live music scene mate the full mortgage application, processing and approval process. When it is finished, the Java/Oracle/ Common Object Request Broker Archi tecture application will let homeowners apply for and qualify for loans over the

Jacksonville offered better pay and a lower cost of living than New York. Bielobockie's salary increased 50%, and he traded in his high New York rent for a monthly mortgage on a three-bedroom

house with a two-car garage that he bought for less than \$00,000 The HomeSide project should last until April 1999. Once it ends, Bulobockie expects to

move back to New York, even though the local job market is strong and experienced programmers are in high demand - particularly C++ and Java de-Socially, Jacksonville doesn't have a lot

to offer a young, single professional, Rielobockie says. While he enjoys the beaches, parks

- especially the many jazz clubs - and the restaurants where he could get a four-star meal on a shoestring budget.

#### TAMPA

DAVID O'MALLEY Programmer/analyst, Time Magazine Customer Service Relocated from: Portage, Ind. Moving date: April 1997

When David O'Malley gets home from work each day, he puts on a pair of shorts and sandals and lounges by his pool

Later in the evening, he and his wife go out to try a new restaurant and enloy the warm breezes off the Gulf shore. It's a long way from shoveling snow six months of the year in northwest In-

diana "I like the lifestyle here. I'm not sure I would consider it easier; it just presents a different set of issues," O'Malley says, O'Malley has found more in Tampa

than a new lifestyle The former data center manager has launched a second career, returning to his roots as a mainframe programm analyst. In exchange, he's getting what he considers a paid, 10-year trial run in the area he and his wife had chosen for their retirement. His new employer, information systems contracting firm Computer Management Consultants (CMC), reimbursed him for a large percentage of his relocation costs He devised his grand plan when his

employer of 30 years, Inland Steel Co., offered him an early retirement package as part of a downstzing move in 1994 O'Malley accepted and would have left Portage to prospect warmer climes then. at are so, but Inland hired him back as a consultant for two wave

In February, O'Malley hit the World

Wide Web to scout jobs in the Carolinas and Florida; be settled on Florida because it doesn't have a state income tax. CMC hired him for a DB2 database project at Time's customer service operation. After six months on the job. Time exercised its option to hire him, and O'Mailey joined the company on Oct.

#### ORLANDO

IIM WATERS Vice president of IS, Universal Studios Florida Relocated from: Denver Moving date: January 1997

On his lunch hour Jim Waters strolls the streets of New York, Los Angeles or San Francisco, depending on his mood. As the vice president of IS at Universal Studios Florida in Orlando, recreated

movie sets are his playground. Waters was the head of IS at a small marketing firm in Denver when a friend told him Universal Studios needed an 15 chief to lead a total replacement of its

He leaped at the chance faster than you can say Bates Motel. "I had previously lived in Sarasota Fla., so I knew what living in the state was like," Waters says. "But what interested me-most was the job. Because we're a theme park, we have a large variety of core systems - food service,

merchandising, ticketing, call center, travel services - as well as the systems any company would have." As a new resident of the area, Waters says the biggest misconception about Orlando is that it's only a tourist town. It has a cosmopolitan population, draw-ing relocatest from around the world be

notes (1 Goff is a freelence writer in New York.

TYPICAL SALARIES IN NORTH AND CO	NTRAL FLORIDA
Chief information officer	\$123,000
Director of systems development	\$73,000
Director of networks	\$72,000
Manager of voice and data communications	\$65,000
Project manager, systems and programming	\$65,000
Computer operations manager	\$62,000
Database manager	\$60,000
Systems analyst	\$55,000
Senior systems programmer	\$54,000
Systems programmer	\$50,000
Webmaster/Web designer	\$50,000
Committee of the same being boney	



SENIOR SYSTEMS ANALYST

High tech jobs.

www.dice.com



Waldec

FLORIDA'S GULF COAST Land of Sandian and Opportunity/

ANALYST

IKON WORK TO WILL.

ddoc/NEON Technology Services is a S4 billon leader in computer systems integrates, edding a ligher level of Service to clients and enhanced cases potential to Accounts. Sen our view term for exploring the following cases assessmentary.

group and to express to transplant representation of the Companies of the Vice President, Sales & Marketing

WITH THE VISION





DAGA. Plant is a continuer-focused, advanced incheologies systems integrator. We deliver sectionized province province and particular collection to charge the delivery section for the philosophy that has proposed us to be one of most. Foreign leading consulting forms. We now have many exchange apportunities for Solviner Professionation with any of the following contractions.

Join A Winning Team



www.designdatasys.com



#### Find training

now.



If you haven't visited us lately, here's what you're missing . Latest News updated three



#### 21 Of The World's Smartest Interactive Media Experts Agree On One Thing: @Computerworld Has The

**Best Editorial Content** 

CW Audio With Online Audio from Industry Newsmakers
 The @Computerworld Minute, a daily online as

\*Tech City- A New World Of IT Commerce and Service \*The @Computerworld Quick Poll - Your opports

So, find out why Editor & Publisher singled out @Computerworld. Visit us today at





#### VISION, LEADERSHIP, GROWTH.

At Pratt & Whitney, our vision is to create market leadership and product distinction through Information Technology. A division of Fortune 50 leader United Technologies Corporation, Pratt & Whitney is an innovative leader in the Aerospace industry. We build the future . by fostering and combining the energy and diversity of an exceptional group of II professionals. Vision, leadership, innovation and technology have made us what we are today. If you're one of these exceptional people, look into one of the extraordinary Connecticut or Florida

- Process Controls Engineers
- Client Server Analysts
- Software Engineers

opportunities below.

- Sefeware Quality Assurance Specialists
- Business Systems Analysts
- Manufacturing Systems Analysts
- Network Engineers
- DEC VMS System Manager
- Systems Integration Professionals

### **GET YOUR CAREER**



In addition to a state-of-the-art Information Technology work environment, we provide excellent compensation and comprehensive employee benefits, including relocat and 100% baid consinuing education program. For immediate consideration, please forward your letter of interest and resume to: Information Technology Opportunit Prott & Whitney, 400 Main Street, M/S 101-29, East Harrford, CT 06108. Email: misjob@pueh.com Visit us on the Internet at www.pratt-uhitney.com

**Pratt & Whitne** 

Something for everyone.

With the breadth of in-demand USA con-tracts coupled with the right skills, you wi wirtually have the opportunity to do what NATURAL/ADABAS CONSTRUCT

· COBOL/CICS/DB2

Interested? FAX or e-mail your result to: (PL WorldGroup, \$10/472-4904







training now.

Separate Sep NI consultant technical specialist project leader NT specialist Programmer analyst MS Certified rainer Project manager - Year 1000 database administrator unix systems administrator

http://careers.computerworld.com



career@gent



IT'S EASY BEING A GLOBAL LEADER, WHEN YOU WORK WITH WORLD-CLASS PEOPLE.

MIS Director









#### he new frontier.

BAY SEARCH



1 - 800 -

## This Web site

e-mails you with the career opportunities you want.



Register today and use CareerMail

http://careers.computerworld.com

itCareers.

Where the careers find you.

Software engineer with 2 years of apprinters and the engineer or companier politication as a the engineer or companier politication of the engineer of the engineering and interesting and int

in the state of th

Manual Manual Agrand
Committee Committee Committee
Committee Committee Committee
Committee Committee
Committee Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Committee
Commi

More or Nes.

Street or Nes.

March Street o

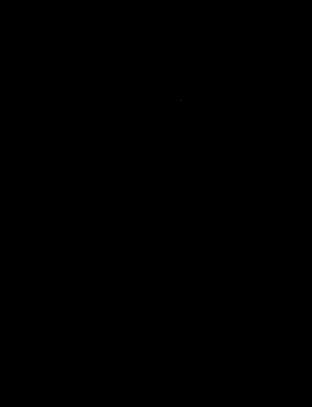
and the second s

training now.

Find

of the required eat, and one Passage consumer systems and/or, and one programme and/or, and one of the consumer systems and/or, and one of the consumer systems and/or, and one of the consumer, and/or and/o





## This Web site

e-mails you with the career opportunities you want.



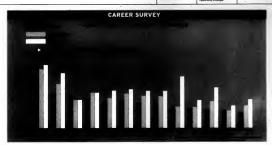
Register today and use CareerMail

http://careers.computerworld.com

itCareers.

Where the careers find you.

Find training



## 

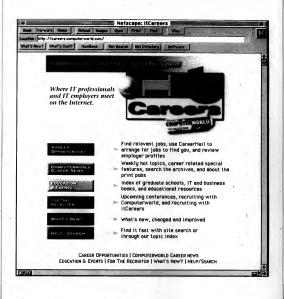
Imagine the time saved if you could search one wild dutchess Now you can by simply accessing Release 1 of a menagent:

While you'm there, check out the preview of uponing Cocorporate subscriptions, to assets learning styles, and ish a intelligent decision support system, and focus a second

The point? Every individual on your hearn has an idea of their cragade. Think chou't your current team today, bo bindvidual curver place influing resources? Corporate goods? Is this information, carelated to assocered

For details, see careeragent.computerworld.com at call 1.800.343.6474 what it should be: a well-planned journey of enrichment.

career@gent



http://careers.computerworld.com

## Reserve you place now! 1-800-488-9204



TECHNICAL RECRUITING CONFERENCE

COMPUTERWORLD

1998

Marriott's Orlando World Center Resort Orlando, Florida

### Marketplace

#### NEW & NOTABLE

#### New ICS Image MASSter sets up 16 workstations with Windows 95 or NT in less than one minute

ether a system integrator is faced with loadinq a saite of settware applications onto hun-inq a saite of settware applications onto hun-dreds of new computers or the MS department of a corporation is looking to migrate hundreds or even thousands of PCs to a new operating sys not to historium come community and to intelligent Computer Solutions (ICS) unces the perfect solution for software ing. The image MASSter<sup>18</sup> 2000 is the faster cost effective hard drive software duplica

onostic system on the market. It are at the blazing speed of up to 300

Vindows 95 or Vindows HT onto 4 hard

taneously, in 30 seconds, or using three or A unique feature to ICS' IM line is IOcopy.

#### Express Storage Remarketers L.L.C. EMC Remarketing Experts

nderson & Wells, Inc., has launched its focused EMC remarketing team nationwid and in Europe. The storage emperts are posi-tioned to offer a complete line of EMC Series 3000, 4000, & 5000 systems and upgrades at dramatic savings vs. new EMC 5400 & 5700s. "We realize that today's storage requirements are in such an upward spiral that technological superiority must be tempered by realistic price rmance. The proven performance of the symmetrix product offers an outstanding

storage requirements, both mainframe and open system, at a fraction of the cost of chasing newer technology," Express
Storage Group's Co-founder Michael

Use the pricing dynamics to your advantage."

\$25,000 CASH

Therefore it's ANDERSON & WELLS trade in prodata expansion. IN VESTMENT COMPANIES of caretta will
year 2000 projects, or critical performance requirements, tower your cost per quality rather than we have an Express Storage solution. Howe to "cascade" your metiention defair invests

current equipment can also be arranged to ed in 1985 located in Phoenix Arizona. El

rage Remarketors L.L.C. is boadquarke Process with offices in Chicago, New Yo and London, England. The storage experts be reached at (602) 253-1041, FI (602) 25 1450, or www.expressstorage.com

#### WIN EVERY WEEK!

nputerworld Marketplace Technologs Sweepstakes

Nov. 3 TechnoTov: Rich Tennant



**Cartoon Mug** 

is often seen in Computerworld. We one of 10 belos alone away!

COMPUTERWORLD



Fax this completed form, or all of the following information to: (800) 898-2299.

Yes, I want to enter to win a Rich Tennant cartoon mug. Please also enter me in the end-of-year 1997 Super Prize Sweepstakes Drawing.

State:\_\_Zip: Fax: \_\_

Are you currently a Computerworld subscriber?

leace Date: 1/3/97



Corporate America bas a new look these days thanks to a Farrane 500 PC manufacturer from South Dakota. From a two-person start-up operation to 1985 to a \$5 billion global company in 1996, Gaieway 2000

has taken the PC industry and corporate America by storm.

Gateway 2000 Mayor Accounts, Inc. is there to handle the unique needs of large-volume purchasers. Gateway Major Accounts delivers Value of Ownership: the winning



combination of high benefits and low cost for the life cycle of your computer. Graph-quality PCs custom built for your business that go to work for you night out of the box — that's Gateway.

Want to know more about this cow-spotted business phenomenon? Call our Gateway Major Accounts representatives today, because we mean business.





www.gateway.com/majoraccounts.htm

Gateway 2000 Major Accounts, Inc. 610 Gateway Drive + P.O. Box 2000 N. Sioux City, SD 57049-2000 GSA Schedule #GS-35F-4565G

#### Marketplace



OUTSOURCING

REMOTE COMPUTING frame Conversion Test Enviro ·YEAR 2000: Mair

\*TAPE CONVERSIONS SYSTEMS PROGRAMMING & NETWORKING SUPPORT SERVICE

are the "Boutique" of the Computer Services World

(201) 319-8787 • (800) 274-5556



20 Gig IDE Hard D

\$799.00

www.dxmusa.com Complete spec's visit our web site

3 Year Warranty

NE COM 3 Connectivity Without Clutter.

**Attention Mail and System Administrators** As a way to distribute "spam mail," illicit direct e-mailing com-. panies are using SMTP Mail servers at corporations and ISPs as the primary distribution system for their voluminous mail. Typical ly, the attack involves the spam agent opening an end user account at a small unsuspecting ISP, and then using a known open e-mail server elsewhere on the net as the distribution device. Most companies are unaware that their systems have been sed until they receive complaints from recipients, or from ISPs that have been mail-bombed with the sparr

Computerworld is in the process of collecting information about potential transcressions by these spam mailers. Companies that may have had their e-mail servers utilized in this manner are invited to work with us to put an end to this practice. To that end, we are collecting as much information as possible to help provide evidence for potential legal action

We need the following information to be successful in this ef fort. The date and time that your server may have been used. any log files that show the usage, e-mail responses from aggreeved parties that received the spam, and any information that shows the originating entity. In addition, if you can determine any financial losses or direct impacts that may be attributed to this activity, an estimate should be provided. The information may be forwarded via e-mail to

fed@computerworld.com, or faxed to (508) 270-1111. Please provide a return e-mail message for future correspondence. We will be building an e-mail list that will be used solely for the purposes of sharing this information with all affected

#### NEED HELP WITH



TransTed

OUR admiNTeam IS THE BEST IN THE BUSINESS!

#### Year 2000 Problem

We can help to find a solution

PLATFORMS: IBM Mainframes, IBM Compatible PCs. PROGRAMMING LANGUAGES: ADABAS/NATURAL COBOL PL/1, Assembler. TOOLS: Automatic and semi-automatic.

CAN DO: Impact analysis, source code conversion, testing. 100% accuracy for compliance with year 2000 guaranteed.

WE'LL REAT ANY DEAL AKVA SOFT, INC.

Focsimile: (703) 684-6971

call 203-857-5100

#### Marketplace





#### Why Advertise in Card Decks?



#### Because they work!

Card Decks are one of the most cost-effective and powerful tools for marketing products and services, if you sell IT products and services the Computerworld Card Deck can help you by:

- · Providing direct access to the desks of more than 145,000 paid Computerworld subscribers · Encouraging quick, measurable response via the business reply card format, as well as toll-free phone and fax numbers
- . Generating the highest quality leads at the lowest possible price
- . Enhancing your company's visibility and building awareness of its products and services

#### COMPUTERWORLD

For information on how the Computerworld Card Deck can work for you call today! Norma Tamburrino • National Accounts Director • (800)252-4821, ext. 409



Hillout Path, PO Box grys, framingham, MA or you grys 7, Fax: (508) 875-4164

Careers Size Jonnalier Arrope, Salan Assessate, 500 Cl tool Path, Framergham, MA cryps-psyr (Soot) 543-54

President, Marketing/Control L. Alvan, Marketing Dresno/Elizabeth Philips, Manager, To

en Sambreek. De Vice Prende	Marketing Manager (from at Capulation/Maureen B	regar journ C. Dale, Morketing Spicialist, in/Shart C. Dale, Morketing Spicialist, urbe PRODUCTION: Production Directo TION: Distribution Manager/Sob Wrisco	Emily Division  of Christopher P
	COMPL	TERMONLO	
Pres	ident R Rogers	Vice President/Editor Paul Cillin	
Senior Vice Po Matrice	oddont/Finance c Smith	Senior Vice President/Consumer Ma Carl Odensel	arketing
Advertising progan	Vice President of IS Richard Broughton	Vice President/General Manager New Media E. Information Mignet Richard Milities	Vice President/ Human Basevicer Susan C. Peny
-	INTERNATIO	NAL DATA GROUP	

#### The Week in Stocks



	-		
	99 35		440
		99.79	
	90 94 9.30		
844			Section Control Contro
BEA.	85.25 95.06	96.79	
	16.55	25.60	
CCEW	31.86	163	
Canel			
DICI	51.75		
PORE	49.50	1210	
CDE			
		46.56	
	89.75		RECEPTIONS
		34.70	
METM	8.50	310	
NTM			
	22.36		
MERC	14.15		
AT POM			
999		9.75	
PCTL	M1.14	794	
8600	5.75	100	
	625	550	
	44.15	4141	
METS SAC SPA	3494		
non	1700		2225
SWSZ	1915	621	

17 Se 102.40 103.40 411 302.11 12.21 12.21 14.21 14.21 180 500 101 100 113 125

10° 100	+ 16.	**
16.25		
	1.00	

\*\*\*

990			Description Con-	
	25,59			
				ľ
4440	45.50	120	Aprendia Michel Devices Sa	
ACC.	36.00		Appendix Miche Devices Sa	1
Det	9.0		East and Torontomer	
CRUS	2.10	6.20		
C7	10 34	99.13		
	15-30			
	100.00			
WERE			Orest Sautheburten-Corr \$3 One bring Corr Sarta Corr Satisfact Corr Bring Seaconstructor Brin	
wor				

100

No Devices Sa	22.99	5.00	12.9
MAN CONTRACT			
		9-00	
	1438	4 44	44
Destruction Coor		4.00	- 64
	Z2 ***	433	40
	77.88	1-25	++
	8613		
83	21 90	-0.81	44
resucrostuc.	BB:		33
	34.30	256	319
Сомрустия	011	434	12
(M)	195.00	413	- 11
MAN .	10.16	40	43
	14.56	276	- 22
	16.00		
			_
es Comenos	44.00	121	**
escomesor.	2627	410	41
fA.	110	490	13
	4.86	43F	14
	10.23	136	44
	1723		
	2675	100	42
	10.25	441	45
Samuel Co.	1.00	470	211
	65.63		
instrum last			
a tec			
MARKET PRO			
	1626	194	
M. COMP.			
	79.80	489	2.0

大変は、日本の日本の日 日本日日

11.00	24.86 20.30	Bures 50 Zunether
		Approxi to Approxi to the Samuel Communication Communicati
71.00		
	5.89 5.89	
60		BRC Cee
17.00 2.00 2.00 2.00 2.00	90.38 90.38 900	
100	1415 500 1525 2.05 2.05 2.05 2.05 2.05 2.05	Emerical International Interna
88 63		
		***

fiele				
W(P)			McG Terresoutes	14.5
70.0	me	7700	Zunebes.	16.3
#0PT	14.25	ж	Admired Intil	44.3
CHEM			Countred Factorious Con.	
3368		6-38	fore-faction \$5	
CCM	19.34	210	Diretes Conf.	- 44
DAR				
ESCC	11.64		Event and Schoolson	26.7
ERRY	17.00	910		10.3
64	5.80	***		
CHAR	24.75	16.20	Great his	133
PhO.		6.30		
AQM			Children PO	23
QNTH	6.0	4.75	Countywillers.	31.8
905	1690		Separate Countries Loan Sp	
ITE	28.74	11.36	Extense Surveyant (N)	187
***	-	44.00	Armun Com	79.0

		Ancesta Paper Compande	
24.14	6-20	fore-faction fit	
		horagovison beron (2)	
		Manta (vive	
		Constitution.	
		School St.	
		Separat Countries Coar 50	
		Address Mean Service	
		Commons have Provinces	
			1.30

			43
	3094		
We book the.			
Tandras Con	13.66	4.8	44

G/P				
CSN		00.80		
	911			
REY	99-65			
CONT	33.30	19.00		
100				

WEALTHY	'LOSERS'

(s	<b>Office</b>	of	W
Bill Gates			
Larry Ellis	on		
Gordon Mo	ore		

MOTERAL STATE OF STAT 



AcceleratedSAP. Five quick steps to a better ROI. Get the most powerful business software in the world the fistent way possible with AcceleratedSAP. It's a new program that allows you and your TeamSAP\* consultants to follow a proven five-step path to R./Y implementation.

From Project Preparation through Go Line, tools and templates minimize delays and unplanned costs. Even after you've up and running, we're there to support you every step of the way. Already, companies using AcceleratedSAP have gone leve in less than six months. So, with the returns in our AcceleratedSAP, now it it time for you to get your better return on information. For more information.



aneSAP is a new initiative of people, processes and products projecting SAP's total connectment to customer nations.



#### **How to contact Computerworld**

и	TELE CHICKE / FA E
ı	Main phone number
	E MEIL
	Our Web address is were computer userfd.com. All staff members can be reached via E-mail on the Interest using the forms. Britishame_bishame@cwcom. All IDC News Service correspondents can be reached using the form: fritishame_bishame@edg.com.
	LETTERS TO THE ED-TUR
	Letters to the editor are welcome and should be sent to: letter@cu.com. Please include your address and telephone number.
	MAIL ADDRESS
	PO Box 9131, 500 Old Connecticut Path. Framingham, Mass. 01701
	SUBSCRIPTION/BACK ISSUES
	Phone (800) 551-6431 5-mail circulation@cu.com. Back issues (508) 820-8129

Who imples	readers to call or write with their com-
	d ideas. It is best to aubmit ideas to one of
	tment editors and the appropriate beat
reporter.	

Editor in Chaef Paul Critin (528) 600-7724 Executive Editor Maydium Johnson (508) Executive

Department Compan/Heres How Edies: Parcu Kerle judy 520 ft di indian Edies: Eron Fegury 3260 San Saja di News Edies: New York og 6261 Ero Fey et News Edies: New York (Am Jun 474) Section Editor Michael Goldlery (Self) 629-770;

Online Editor Johanne Ambrosic (self) 529-770; on lifer audith it decreases (coli pid-alli)

Sewes Environ/News Encour Encountings

- Encountin

don hing deb Walace (pell) Bre-lina nets Carol Shen (pell) 618-4251 Stores Warran, News @Computerworld Stream Dest () of () Eac-8-15.
PCs, severe, est computers: April books () of () dan-8-12.
Senanty, federal government: Sharen Machine (pol): Ean-8-17. New products. Names Office (days) 548-5508.

ila, kom-and skringer Mobile rempusing Kon-Grand Hige) 548-555 Macromunications Mad Hambler (201) No-dyle @Computerwood: Fair-vis Thitedese (201) Son-drug Contract. Corden Main Ung 16-50 548-5572 Clarifornia subseque. Namely Western (poli) In Rudble. Unis applications

@Comparamental Wyte Wang (654) 548-558

Orienzas Columna Editors Sever Engary (108) Sto-Studi

Michael Goldberg (508) 639-7789 Save Ulfelow (568) 639-7785 new chief front Hopes (195) aga-cross winness jumps Connectly (yell) \$200 to face

Semina Company Factories Second Editoral Patricials

Meninging Alice Rate (pith) 640-774,
Special Reports Gary H. Arabes (and ) 500-774,
Peatrician writer Revis Banden (poll) 630-777;
Bryon's Golde Cathlese Gapta (pith) 550-779;
Management Strive Utilities (pith) 640-779;
M. Dapeth. Strive Utilities (pith) 640-779;
M. Dapeth. Strive Utilities (pith) 640-779;
M. Dapeth.

If Careers David 9 Trinion had bendried Bryer's Guide Any Malloy (108) 630-7704 Managing fick San Gell Ban Brill IDC News Science Councilrownium . Porte bureau chief | pravene Bocza ((g) + upra-both UH correspondent: Even Erenh ((g) (y) anti-open Bob Fink, sensor smeanth memager (p.60) Bar-Brid; Laura Hurz, respects seeight: Striken McCom, selver graphics seentheasir; Man Keels, ordina restruction

Eller Fanning, managing oders (poli) Sec-Bros. Beheris Fysiers, assistant managing oders Christia Acard Migure, print Selle, Dard Earnel sensi-cays adiars, Emilier's Elections, Michael Develors, meter prediction copy olders: Fist Hydis. Michael meter prediction copy olders: Fist Hydis. Michael relative, Each Show copy editors, Jensey Selept.

Son Monahan, design director (pub) Rondard, panel Generate, process art director/features. Minchel | Genome, success and director/leadure. Marked I Hopes, cassionate and descriptions. Deed Waugh, associate art descriptione, Many Social sense graphic designer. Carol Lets, alrem researched admir. Allie Guildarg-Richlagh, Amira Hussin, April O'Connor graphic designors, Noti Turrant, John Docs-

Unto Gorgone, effice manager (set. 876), Connu Brown (set. 875), Lonsone Wissel (set. 895), Selice Versa-Manary (set. 875), Oine Flanagon, edecral monteres, 15575 Self-Cyfic

Countries Countr Contades Promor non Compus Edition, Berg Plants to Torclade Harrier von Campus Edition, See Flason Stock, Leadership Serves, Internet Serves, Ennou and Health Carr Journal! Nam Algas, edition (2018) Each Riss Selvey Brandal. Inter Algas, edition (2018) Each Riss Selvey Brandal energisting edition. Amen Self-Corry Catherine McCrorry layor Chaddwan-Romans, manageing editions, dembar law A Seeths, successor manageing editions, dembar law A Seeths, successor manageing editions, dembar conditionate. Many-bank Variot, art diversor:

intermental is our World Wide Web site. On it, we publish daily news and feature stories that ent our print coverage. We also have special audio features, such as interviews with indus-les, and the @Computerworld Missain, which is an audio version of the day's top novs.

A few times each week, we also have Links listings. These are resources related to online and/ or print stones. We also have polls and forums that you must register for to access. The rest of the sete is accessible without registering.

Centact: Johanna Ambrosio, Online Editor, (508) 820-8533 or Johanna Limbrosios@cuccom.

#### Companies in this issue

Michelle Olk, (Boo) 217-7834

Page number refers to page on which story begins. Company names can also be searched at www.computerworld.com.

	2
	C
About Technologie, in: About Technologie, in: Advantal Subsahage Labouted	
	-
	-
	3 4
	0
demotion Conjugation Conjugati	
American Co	Con
	0
	Cu
	Q.
	200
Amendende Inc. Amende Companies Inc. Applies Inc. Applie	04
	254
	-
Bell Atlantic Corp.	
Sale Administration in Company of the Company of th	24
	-
and the same of th	2
Bulant Corp.	
	Sec.
	-
Briston Color Corp Balant Corporations, Imp. Browner Brist, Inc. California Spelants, Inc.	-
	-
	344
California Esperana, Inc. California Esperana, Inc. Carrelliain Esperana, Inc. Carrelliain Esperana, Inc. Charles Estevania E. Co. Carrelliain Esperana, Inc. Charles Estevania E. Co. Carrelliain Esperana, Inc. Carrellia	-
	See
	2
	-
Classification Class Foundation Classification Laboration	
	2

Comp. Commy	Cortor Comp. No
4574	Condule & Barblari Con.
	Create Systems
milion, incP	Gregheard Lines, Inc.
w	Comp Health, Inc. CTE Corp. Coll Times Topola Health Perford Co. U.S.
	Halanda Salandajan B.400
- C	Filtracki Gent Sentence Corp
	Holiza CMI Haribon Corp.
	HT Medical Systems
10.00	
	Harate Comp. Inc.
72.89	
imputer 140 imp 1417 114174	label, but Com-
	Indeed Short Co.
	Solutions, inc.
	Statistica Sychologia, Inc.
	hos Corp
	Interior in
	bedliged freisoners
	Intractive Lagrang
	Interestinal Corp.
	Internal Service Service
Come	Internal and Evin Corp
- Committee	
	Soft Freely, Inc.
	Hart & Accordator, Inc.

Labor Development Corp. Corp. 1, 35,57 Louising Department of Labor
Major, Inc
Martine Trisphone & Trust Co
Hardway Majabase & Trad Co p Hardway International, but UCA Basends Committee Inc p McGonald Committing Inc p McGonald Committee Inc p
Market Group Seat. 1 Market Group, Sea. 1, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,
- Colonia Cont. Cont. Colonia
Section Corp
Materials, Str. 122
Marris Burth Asserted Str. 19
Moderal Insurance Com
Marienal Science Poundation
Makesal Weller Contr. 6
MOC Communications Inc.
Name Solvens Corp
MAGEN
Material Section Secti
Makeum Balantington, Inc
Name and Address for the Control of
New York Newphol/Cornell Useful Conter E Exact State of Corp. p Expert State University Hospital
Berry L.

Peganes Systems, Inc	Sylven
Personal Distance Dis	-
des based are	200
	Portion in
The Conditions in	-
Marke Channels of	-
Notice Control Management - Court	-
agreeded bearsons Corp	The C
Production incomments	TheCo
I cheekle t	The Br
yeard belooking Corp	berry
The state of the s	104.75
the state of the s	The said
and the second second	2
of the	7
but Storm Extendishment, Inc	Bud.
Inflores Halland Insurance Co	Tourse
PL 14	Spring
habita Systemac, Inc4	Dales
the same of the sa	Undep
MANAGANA 6	Under
and between the case of	2
W-MC	UPhra
AP America, Inc	100-
icortodale Incorporas Co	-
Companies Corp	Netico
min fame (c	The be
administrational statement are with	1000
Shore Complifies here	-
Institute falsess for	-
2	Jane
to	-
actory for beforesation Management, Sy	Talan.
27	Testino
oteron A. Coggantain Museum 44	TINCA
And Probable No. 16	Repair Spine
-	

	Sphant Inc. Spends Cop. Spends Ruberings via Stay Spinner Cop. Spinner Sub- Sub- Sub-Chairs, etc. Sub-Chairs, etc. Stay Sub- Sub-Sub- Sub-Sub-Sub- Sub-Sub-Sub- Sub-Sub-Sub-Sub- Sub-Sub-Sub-Sub-Sub- Sub-Sub-Sub-Sub-Sub-Sub- Sub-Sub-Sub-Sub-Sub-Sub-Sub-Sub- Sub-Sub-Sub-Sub-Sub-Sub-Sub-Sub-Sub-Sub-	
	Egeona Markelings Merchandungs Anderson State (1997). A state of the property	
经外的股票的 经分分的 医多种性 医多种性 医多种性 医多种性 医多种性 医多种性 医多种性 医二种性 医二种性 医二种性 医二种性 医二种性 医二种性 医二种性 医二		



When you're under pressure to make critical business decisions, CFO Vision software delivers the timely and accurate information you need.

CFO Vision is the single source for all your key business information, both financial and nonfinancial—readly accessible for interactive analysis and reporting. It's never been easier to see product and customer profitability, the potential impact of a reorganization, or key performance indications in any currency.

You can view your business from all angles because CFO Vision is the first financial consolidation and reporting software that integrates feedbe multifulmensional analysis (DLAP). All from one vendor. ..SAS Institute, the leading name in / decision support at more than 29,000 companies worthwide including the Fortune 100.

For a closer look, give us a call or visit us at www.sas.com/vision

SAS Institute Inc

The Business of Better Decision Making

WHEN IT RAINS, IT POURS

Interest stock trading hit new heights in last week's stock market delage:

\* ETrade, which normally handles 24,000 trades per day.

\* With Web access slow, ESchwah's phone system volume

· Volume on Ameritrade's site was 42% above normal on

The Motley Fool's Internet investor chat room saw traffic

Monday. On Tuesday, It Jumped 62% above Monday's tally.

increase from a normal 50 users to nearly 300 on Monday.

went from 250,000 calls per day to 430,000 on Monday.

Nt 50.000 trades on Tuesday alone.

#### Stock drop tests online brokers

Cambridge, Mass. "Sure, there were problems, but that was true across the board in the in-In fact, some full-service bro-

kers couldn't complete trades placed in the morning until late afternoon, and all the while telephone lines were jammed, industry watchers said

"If you and at other peop are calling your broken you'll stay oo hold for half an hour The Internet was the factors thing going," said Bill Burnham, an analyst at Piper Jaffray, Inc. in Minneapolis. Still online brokers saw volumes that few had been prepared to handle, even though users have been flocking to online trading during the past year ICW, Sept. 201. "In the planning stages you

say, 'Let's build for the worst case, so we don't worry about going out of business' during a crush," said John Holmao. managing director of Internet services at National Discount Brokers in New York

But you can't duplicate a 1.2 billion-share day" in quality assce tests, he said. Even though online brokerages rushed to free up access to

their sites (see story at right), not all users were happy ETrade Securities. Inc. and Charles Schwab & Co. were blasted on Internet discussion

groups by disgruntled users who had problems accessing their sites on the Internet. But an FTrade snokeswoman pointed out that about one-third of its 200,000 account holders accessed the system on Tuesday

That is little consolation for those who lost the chance to

"Imagine you are sitting in a traffic jam, and your wife beside you is about to deliver a buby That is the feeling you get when you know you can make a major profit but just cao't get your hands on your money," said Xiangdong Shr. a San Diego unvestor who had to wait all day to

get a morning trade confirmed on ETrade's site. Gazala said online beokers could take a page from their fullservice brethren and do everything possible to assure customers such as Sha For example, he said, some

#### Handling the onslaught

nline brokers moved immediately last week to do what they add to handle the transami of trades.

At National Discount Brokers, at Internet staffers were out up in Manhattan hotels and told to order in all meals in case they needed to jump on an access problem

· Datek Securities Corp. in Iselin, N.J., added three Web servers on Tuesday night to double its capacity.

OUJ Direct, a division of Dunaldson sen, Lufein & Jenrette Securi-

ties Corp. in New York, added servers Monday night to increase ca pacity by 66%. Tuesday night it added even more servers to burns

• Etrade Croup, inc. added servers over the weekend and again on Monday after seeing results from Asis. - Stowart Deck, Kim Nash and Tim Quellette

full-service brokers planned to different ways to place trades" reimburse customers for money in addition to the Internet loss in trades that weren't com But online brokerages should pleted when requested. Others make those methods clear so performed trades commissionthat if users can't get through, free at branch offices if users they know the best option to

get their trade in. Burnham But the Internet creates dif-Still, "technology has taken ferent problems in verifying over the Street," Holman said If this would have happened "If we have a ticket and don't five years ago, even the New execute a trade, then there is no York Stock Exchange wouldn't have been able to handle the vol-

Travel agency builds

#### Omaha "But with the Internet I think that can turn into a black hole That is why we offer six online traffic jams. Page 43

AlliedSignal races to the Web

could out \$500,000 in yearly

electronic data interchange (EDI) costs. Moving orders to the Internet also would make it economically

feasible for smaller retailers to buy electronically from Allied-Signal, Keenan said, because EDI start-up costs can be prohibitive for such firms For the auto-racing enthusi-

ast, the site will feature a carracine section with photos shot for the site, live audio of drivers and their pit crews and special stories from ESPN commentator Bob Frey. (Allied expects to promote the Frey columns during some FSPN race broad-

DIGITAL RACING CARDS

Site visitors will be able to create their own "digital racing cards" with a driver photo and audio to send electronically to their frends. Most services will be free although after five minutes of free audio, the site will sell time from a telephone-based service called FanScan from Racing Radios, Inc.

And for the average car own er, there will be artificial intelligence software to help diagnose car problems. Free for a to-day



AlliedSignal's Eric Singleton and Kristy Davis

trial download, the AutoTech software will likely retail in stores next year for \$49.95. The site has involved every as pect of AlliedSignal's auto after-

couldn't make a trade over the

problem in reimbursing a cus

tomer," said Mike Anderson.

president of Ameritrade, Inc. in

such trade attempts

phone

market business unit - from sales and marketing to shipping and customer service - as the project team thrashed out which service to put online "There's no department that it didn't touch," program manager Kris-

ty Davis said. Like many manufi AlliedSignal had to face the sensitive issue of how to deal with existing distributors, retailers and sales territories before more mg all its conventional product sales online. AlliedSignal decided that at the motor sports section of the site, consumers will be able to look up parts numhers for items such as oil filters although they will be able to buy only relatively rare goods not generally stocked in stores. Actual sales to consumers will be limited to poselty items

each as racine hats and jackets This creates a new source of rev enue for the company. Working with Agency.com, a

Web site design firm in New York, the project team sought an unclumered look for its fairly complex site. The opening screen has just three choices Motor Sports, Catalog and The Answer Man. Once in the catalog section, corporate customer click on business partners and enter a user name and pass word; other users can navigate through consumer options.

AlliedSignal will host the site on mirrored Compaq Computer Corp. servers running Windows NT with links back to the company's IBM AS/400. Secure Sockets Layer encryption will be used for financial transactions The site has been benchmarked for 300,000 hits per day. AlliedSignal considers the

site a new product and expects it to generate revenue, not merely wave the corporate flag in cyberspace, Singleton said. 'This venue is the venue for the supply chain, no matter where they are," he said. []

Software tools help Alled Signal, others juggle data among storage systems, Page 63







How a basic yo with the flow mana systems manager suddenly transformed

dynamic action-packed

SNA-FRAME RELAY SOLUTIONS

Is this a great time, or what?



#### Microsoft fought the law: secret tapes . . .

#### Bill Laberis

s I entered a hotel meeting room last month, who should be leaving the room but Ralph Nader, Janet Reno, Sun CEO Scott McNealy and West Coast tortmeister Gary Reback.

Reno: It looks like we have two issues

one dealing with Microsoft and Java and

the other with Microsoft's alleged

bundling of its Explorer

browser. Let's start with

lava, Now Scott, it's your

position that Microsoft

is trying to balkanize la-

va into different kinds of

Java, including one that

runs best on Windows.

They want to

McNealy: Haarballs.

Reno: Scott. didn't

your mother teach you

that if you don't have

anything nice to say

ready? You know. Windows?

stress the people - want a computing

standard, and Java is just that standard.

Reno: But isn't there a standard al

about people, then .

They left behind a tape of their pro- (Loudly, for all) Let's look at them facts! Reno. I've agreed to come to this in-

formal meeting to hear all sides of the arguments, and I see Scott and Gary here. But where's Mr. Gates? Nader: Oh, I'm representing him. Ms. Repp. Bill has always said his is a company built upon computing power to the people, and who better refle. the peo-

pie" than old Ralphie? Reno: Well, I guess that's rair. Look, I don't have a lot of time today. I have these dang Senate hearings, plus the Dolphins are playing tonight. So let's get right to the facts

McNealy: Facts? Why? Reno: Because, Scott, that's the way this administration and this attorney

seperal do things. McNesly: (Aside, to Reback) Did she east wink at me?

Reback: Chump, she just winked at all McNealy: Huh? Oh. Oh. wah. Right!

Reback: Yes, but Java has the people sehind it, the little people. You know, like Oracle, IBM. Motorola McNealy And Microsoft would seek to silence the people, the dirt bass

Reno: Hmmmm. I see. Maybe we should move on to this Explorer thing Ralph, help me out here. Macrosoft is giving Explorer away now, and you want the government to stop them? Nader: Janet, this is the heart of the is-

sue with Macrosoft They continually bundle things into their operating system, from utilities to disk compression to networking, and now their because They use their market clout to

give these things away to corporate buyers. Reno: Wow. That must be killing their bottom line. Reback: Well, not exactly. Their gross profit

margans in the last quarspeed ahead!D Reno: Then they must be using the giverways to control the benware market. Nader: Actually, Netscape has about

ting better, too, if you consider what NT has done in the enterprise. But all that is Reno: What the hell is the point? Rebuck: We thought you'd be interest-ed in how Mr. Gates himself characterized his company's conduct. He said . . he said . . . "This is called capitalism." Reno: He said what?

some trade rag where Explorer blew

away Netscape's Navigator. I also read

where people like Mike Dell are saying

that if he sold PCs without Explorer, his

Reno: That's enough, Scottie. Mi

crosoft has been a monopolist for some

time, so surely by now we must be sec-

ing the upward price movement of soft

Reback: Well, actually, their prices

have been declining. I suppose you could

argue that their products have been get

ware in the segments they dominate.

buyers would resolt

beside the point here

McNealy: Lint heads

Rebock: "Capitalism." Reno: (Shouts to her aide) Tom, we've got one on the hook. A big one Full

Editor in chief at Computerworld from 1986 to 1996, Laboris is now president of Bill Laberis Associates, a consulting and publishing company in Holliston, Mass His Internet address is bill@laberis.com



#### . . . and an international perspective

David Moschella

hat if Microsoft were a foreign company? If Reno to challenge the world's most powyou're trying to sort through the legalities and moralities of the Department of Justice's efforts to show Microsoft in contempt of its 1995 consent decree, consider this change in perspective.

Suppose Microsoft is a Japanese company A new U.S. company called Netscape begins to grow rapidly in an important new software category called owsers. Because the browser appears to threaten the central role of the PC operating system, the Japanese giant responds by offering its own browser for ee and requiring the world's PC make ers to bundle it with all new sales. What would be the reaction in the

U.S.? In there any doubt that Congress. the executive branch and the American people would demand and soon get ac-Remember the fierce attacks against Japanese dynamic RAM vendors m the 1080s? All they were accused of was selling their products below cost. Imagine the furor if they had suddenly started offering free DRAM just to prey

The lesson is clear Public perceptions are shaped much more by perceived national interest than by any sense of right and wrong. One of the reasons Microsoft has been free to roam virtually unchecked for the past decade is that

all its trampled competi-

tors happen to be Amer

If WordPerfect. Borland, Novell or Netscape were French or German, the dia logue would have been more heated.

In the face of this widespread political and citizen indifference, it took a lot of courage for the already beleaguered janet

erful corporation. What's in it for her? Understandably, the Department of Justice has chosen to move carefully. It can make a strong case that the forced bundling of Explorer has in fact violated the consent decree. Other than Microsoft employees, do you know anyone who doesn't think that for the past two years,

65% of that market, Jan, but not for

Reno. But I just read a big review in

lone, if Microsoft continues its wave

Internet Explorer has been much more of a separate product than an integrated Windows of feature? Microsoft will deny and de lay, but its own actions and statements confirm the Justice Department's

> The end of forced bundling might seem like a minor victory, but the umplications could still be dramatic. If the courts decide that today's Explorer is indeed a separate product, how

can they possibly avoid the conclusion that Microsoft's providing it for free constitutes a predatory act? If Microsoft could be forced to charge a reasonable price for Explorer (say its total cost of de-

ement, marketing and distribution divided by total unit sales), today's competitive dynamics would change a lot. Pundits are wrong to argue that with next year's release of Windows 98, the issue is most. There still will be hundreds of millions of Windows 95 machines that Microsoft will want to upgrade to Explorer 4-0 and future browser releases Whether it is allowed to do this for free is still important to Netscape and the fu ture of Internet software com

wants to develop integrated browser/ operating system software, the company should be free to do so. But it shouldn't be able to offer two separate products and give one of them away based on false claums of an integrated offering That is what Microsoft has been do ing. Hats off to the Justice Department for finally trying to set the record straight. It may well prove to be too little, too late, but at least Justice has shown the courage to act. II

The bottom line is that if Microsoft

Moschella is an author, independent consultant and weekly columnsst for Computerworld. His Internet address is devid\_

## Hyperion Software. The smart way to make your company more intelligent.

Hyperion Software makes it easy for you to open your company's data warehouse withou compromising anything

Imagine your company's key people having the information they need to make critical business decisions at their fingertips without you lifting a finger to help them get it?

With Hyperion analytic financial management solutions, there's noth ing imaginary about it.

Take Hyperion OLAP, its built-in Financial Intelligence" opens the door to your company's data warehouses, enabling line managers to access, analyze, report and model information on the spot - without staking up your time in the process. And because Hyperion Software early interactive into your technique of the process. And because Hyperion Software early interactive into your technique into your technique or re-engineer your existing systems and sondards.

For more information about typerion Software, and why more " In fifty percent of the FORTUNE 500

at www.hyperion.com.



## The Back Page

#### NO 'OOPS' IN THE O.R.

Athletes and musicians practice their skills a lot. But It's hard for surgeons to get much practice beere working on patients. So HT Medical Systems in Rockville, Md., is developing a virtual reality system that allows surgeons to engage in realistic "operative rehearsal" without risk to patients. Partial ending is provided by the U.S. Department of Commerce's Advanced Technology Program.

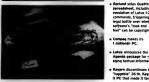
#### In the labs

thesiologist and researcher at the Medical University of South Carolina in Charleston, has developed a hospital wristband that has a memory disk the size of a watch battery. Reuters reports the bracelet will allow patients to carry identification and key portions of their medical records wherever they go. The disk can be connected to a handheld PC for updating.

he National Center for Atmospheric Research in Boulder, Colo., has develgoed software for commercial airliners that measures in-flight air turbulence via existing instruments. The data will be compiled in a federal database and eventually used to create "turbulence forecasts" to help pilots steer clear of the bumpy air.

novel software program that analyzes the brain and computes the user's detecting the early stages of Alzheimer's disease and other forms of mental deterioration. The software from Cognitive Diagnostics in Newport Beach, Calif., is being tested to see if it

can screen for people who should get early drug treatment for Alzheimer's.



Digitel erchives



20 YEARS AGO (NOVEMBER 1977)

u Headline: Banner year for Data General

a Digital Equipm nounces a 32-bit VAX minicomputer.

10 YEARS AGO (NOVEMBER 1987)

 Berland ships Quattro spreadsheet, including emulation of Lotus 1-2-3 commands, triggering a legal battle over whether softwere's "look end feel" cen be copyrighted.

Compaq mekes its 1 millionth PC.

Agenda package for man eging textual information. a Kaypre discontinues the "luggeble" 26-lb. Kaypro II PC that made it famous.

e recently received a pitch from a firm that claimed in its press release to be tible to solve the "year 200" problem. We essume this revolves around some horrible colender mistake made by the chizens of the counbling Romen Empire. Or maybe the year 2000 hug hit the vendor when they wrote the release! If you have a current press release, send it on over to News Editor Petricie Keefe at (508) \$20-\$183 or E-mail her at patricia\_keefr@cw.com.

Inside Lines



#### MICRON™ NETERAME® SERVERS. THE TOAST OF THE TOWN.

Meet the newest stars in enterprise servers.

We're making a big entrance with our Micron NetFRAME 9000 enterprise class servers - offering high-performance, high-availability server technology.

Our Micron NetFRAME NF9008 and NF9016 models deliver groundbreaking Hot Plug PCI technology, allowing you to expand, repair and reconfigure your system online without disturbing users. It's an inclustry first - and it'll redefine the way you perform network maintenance.

Combine this with our breakthrough triple-peer PCI architecture, firewalled I/O, NIC load balancing and failover, and internal monitoring and maintenance, and you've got a system designed from the ground up for high availability in business critical network environments.

This cutting-edge server technology is matched only by Micron's excellent customer service and incomparable value. All Micron NetFRAME servers are shipped directly to you, and they're backed by our 24-hour technical support, outstanding customer service and one of the best limited warranties in the industry.

You'll applaud the Micron NetFRAME 9000 seties. Call us or visit our Web site today. And see why the spotlight's on us.



# WE'VE





Call now to order.

www.micronpc.com



THINKIN

